U.S. Department of Education

Washington, D.C. 20202-5335

APPLICATION FOR GRANTS UNDER THE

Office of Elementary and Secondary Education (OESE) Assistance for Arts Education (AAE) Program

CFDA # 84.351A

PR/Award # S351A210007

Gramts.gov Tracking#: GRANT13320732

OMB No. 1894-0006 , Expiration Date:

Closing Date: Apr 15, 2021

Table of Contents

This application was generated using the PDF functionality. The PDF functionality automatically numbers the pages in this application. Some pages/sections of this application may contain 2 sets of page numbers, one set created by the applicant and the other set created by e-Application's PDF functionality. Page numbers created by the e-Application PDF functionality will be preceded by the letter e (for example, e1, e2, e3, etc.).

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: 03/12/2021

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: The University of Tennessee

* b. Employer/Taxpayer Identification Number (EIN/TIN): [redacted]

* c. Organizational DUNS: [redacted]

d. Address:

* Street1: 1534 White Avenue
Street2:
* City: Knoxville
County/Parish:
* State: TN: Tennessee
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 37996-1529

e. Organizational Unit:

Department Name: Office of Sponsored Programs

Division Name: Ofc of Research & Engagement

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:
* First Name: Sarah
Middle Name:
* Last Name: Gonzalez
Suffix:

Title: Sponsored Programs Administrator, Contracts

Organizational Affiliation: The University of Tennessee

* Telephone Number: [redacted]
Fax Number: [redacted]

* Email: [redacted]

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

H: Public/State Controlled Institution of Higher Education

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Department of Education

11. Catalog of Federal Domestic Assistance Number:

84.351

CFDA Title:

Arts in Education

*** 12. Funding Opportunity Number:**

ED-GRANTS-011521-003

* Title:

Office of Elementary and Secondary Education (OESE): Assistance for Arts Education (AAE) Program Assistance Listing Number 84.351A

13. Competition Identification Number:

84-351A2021-1

Title:

Assistance for Arts Education (AAE) Program 84.351A

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

The Data Visualization Project

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant TN-002 * b. Program/Project TN-002

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 10/01/2021 * b. End Date: 09/30/2025

18. Estimated Funding ($):

* a. Federal [redacted]
* b. Applicant
* c. State
* d. Local
* e. Other
* f. Program Income
* g. TOTAL

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☒ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name: David

Middle Name:

* Last Name: Smelser

Suffix:

* Title: Assistant Director, Ofc of Sponsored Programs

* Telephone Number: [redacted] Fax Number: [redacted]

* Email: [redacted]

* Signature of Authorized Representative: David Smelser * Date Signed: 03/12/2021

Tracking Number:GRANT13320732 Funding Opportunity Number:ED-GRANTS-011521-003 Received Date:Mar 12, 2021 02:42:44 PM EST

NOTICE TO ALL APPLICANTS

The purpose of this enclosure is to inform you about a new provision in the Department of Education's General Education Provisions Act (GEPA) that applies to applicants for new grant awards under Department programs. This provision is Section 427 of GEPA, enacted as part of the Improving America's Schools Act of 1994 (Public Law (P.L.) 103-382).

To Whom Does This Provision Apply?

Section 427 of GEPA affects applicants for new grant awards under this program. **ALL APPLICANTS FOR NEW AWARDS MUST INCLUDE INFORMATION IN THEIR APPLICATIONS TO ADDRESS THIS NEW PROVISION IN ORDER TO RECEIVE FUNDING UNDER THIS PROGRAM.**

(If this program is a State-formula grant program, a State needs to provide this description only for projects or activities that it carries out with funds reserved for State-level uses. In addition, local school districts or other eligible applicants that apply to the State for funding need to provide this description in their applications to the State for funding. The State would be responsible for ensuring that the school district or other local entity has submitted a sufficient section 427 statement as described below.)

What Does This Provision Require?

Section 427 requires each applicant for funds (other than an individual person) to include in its application a description of the steps the applicant proposes to take to ensure equitable access to, and participation in, its Federally-assisted program for students, teachers, and other program beneficiaries with special needs. This provision allows applicants discretion in developing the required description. The statute highlights six types of barriers that can impede equitable access or participation: gender, race, national origin, color, disability, or age. Based on local circumstances, you should determine whether these or other barriers may prevent your students, teachers, etc. from such access or participation in, the Federally-funded project or activity. The description in your application of steps to be taken to overcome these barriers need not be lengthy; you may provide a clear and succinct description of how you plan to address those barriers that are applicable to your circumstances. In addition, the information may be provided in a single narrative, or, if appropriate, may be discussed in connection with related topics in the application.

Section 427 is not intended to duplicate the requirements of civil rights statutes, but rather to ensure that, in designing their projects, applicants for Federal funds address equity concerns that may affect the ability of certain potential beneficiaries to fully participate in the project and to achieve to high standards. Consistent with program requirements and its approved application, an applicant may use the Federal funds awarded to it to eliminate barriers it identifies.

What are Examples of How an Applicant Might Satisfy the Requirement of This Provision?

The following examples may help illustrate how an applicant may comply with Section 427.

(1) An applicant that proposes to carry out an adult literacy project serving, among others, adults with limited English proficiency, might describe in its application how it intends to distribute a brochure about the proposed project to such potential participants in their native language.

(2) An applicant that proposes to develop instructional materials for classroom use might describe how it will make the materials available on audio tape or in braille for students who are blind.

(3) An applicant that proposes to carry out a model science program for secondary students and is concerned that girls may be less likely than boys to enroll in the course, might indicate how it intends to conduct "outreach" efforts to girls, to encourage their enrollment.

(4) An applicant that proposes a project to increase school safety might describe the special efforts it will take to address concern of lesbian, gay, bisexual, and transgender students, and efforts to reach out to and involve the families of LGBT students.

We recognize that many applicants may already be implementing effective steps to ensure equity of access and participation in their grant programs, and we appreciate your cooperation in responding to the requirements of this provision.

Estimated Burden Statement for GEPA Requirements

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit (Public Law 103-382). Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20210-4537 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1894-0005.

Optional - You may attach 1 file to this page.

1235-GEPA.pdf | Add Attachment | Delete Attachment | View Attachment

General Education Provisions Act (GEPA) Section 427 Requirements Statement

In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, the University of Tennessee affirmatively states that it does not discriminate on the basis of race, sex, or disability in its education programs and activities. This policy extends to the Data Visualization Project (DVP) educational activities, outreach, and hiring practices. DVP will take steps to ensure equitable access to, and participation in, its program for students, teachers, administrators, and other program beneficiaries with special needs. Along with these steps, DVP will take other specific actions to further erase barriers based upon gender, race, national origin, color, disability, and age, as applicable.

- To reach members of groups traditionally underrepresented in DVP's hiring of a post-doctoral fellow, DVP personnel will (1) define the position fairly broadly; (2) express our values of diversity and inclusion in the position statement; (3) ensure the search committee has completed STRIDE, training designed to reduce implicit biases in hiring; and (4) search broadly, going beyond main recruiting channels to achieve a diverse applicant pool.
- To address the needs of emergent multilingual students, DVP will make curricular materials available in Spanish and other language as needed.
- DVP PD recruitment efforts will include widespread broadcasts, such as those made through the East TN STEM Hub, but will also target teachers in high-needs school districts, such as those teachers that work with students who are members of groups historically underrepresented in terms of race, national origin, color, and disability.

- Criteria for PD admission will be established prior to application reviews to ensure equal access for teachers who are members of groups traditionally underrepresented based on race, color, national origin, gender, age, or disability. Teachers in high-needs school districts will receive first priority in attending the PD. Visual and media arts teachers will receive second priority.
- To identify special access needs and requirements prior to the PD, we will develop and administer a pre-participation survey. Subsequently, we will develop and implement a strategy plan to address the identified special needs of teachers attending the PD.
- DVP personnel will assist schools and school districts before and during community learning events (CLEs) to ensure access for persons with disabilities through the invitations, the physical space, and the materials presented at these events. To identify special access needs and requirements prior to the CLEs, we will develop and administer a pre-participation survey. Subsequently, we will develop and implement a strategy plan to address the identified special needs. Invitations will also be made online to allow participants to access them through assistive technologies.
- To address the needs of program beneficiaries with disabilities that impede their vision, hearing, or movement; the DVP website, and the corresponding curriculum and PD materials available on the site, will be designed and developed for accessibility.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure of Lobbying Activities,'' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure of Lobbying Activities,'' in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

* APPLICANT'S ORGANIZATION	The University of Tennessee
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix:	
* First Name:	David
Middle Name:	
* Last Name:	Smelser
Suffix:	
* Title:	Assistant Director, Ofc of Sponsored Programs
* SIGNATURE:	David Smelser
* DATE:	03/12/2021

U.S. DEPARTMENT OF EDUCATION
SUPPLEMENTAL INFORMATION
FOR THE SF-424

1. Project Director:

Prefix:	First Name:	Middle Name:	Last Name:	Suffix:
Dr.	Joy		Bertling	Ph.D.

Address:

Street1: 1126 Volunteer Blvd
Street2: 109 Jane and David Bailey Education Complex
City: Knoxville
County:
State: TN: Tennessee
Zip Code: 37996-3400
Country: USA: UNITED STATES

[redacted]

2. Novice Applicant:

Are you a novice applicant as defined in the regulations in 34 CFR 75.225 (and included in the definitions page in the attached instructions)?

☒ Yes ☐ No ☐ Not applicable to this program

3. Human Subjects Research:

a. Are any research activities involving human subjects planned at any time during the proposed Project Period?

☒ Yes ☐ No

b. Are ALL the research activities proposed designated to be exempt from the regulations?

☐ Yes Provide Exemption(s) #: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

☒ No Provide Assurance #, if available: 00006629

c. If applicable, please attach your "Exempt Research" or "Nonexempt Research" narrative to this form as indicated in the definitions page in the attached instructions.

1236-Nonexempt Research.pdf [Add Attachment] [Delete Attachment] [View Attachment]

Nonexempt Research Narrative

Human Subjects Involvement and Characteristics

We anticipate a total of 50 teachers, teaching in East TN, will be involved in this research project. Likewise, we anticipate over 1,000 East TN students will be involved as these 50 teachers will pledge to implement the curriculum in at least one of their courses. These Grade 4-8 students will range in age from 9 to 15 years. Participating teachers and students' health statuses are expected to mirror that of the general population.

Inclusion criteria include teachers participating in DVP PD during Years 2 or 3; teaching Grades 4, 5, 6, 7, or 8 students; and teaching a STEAM subject in an East TN school. Criteria for exclusion include teachers not participating in DVP PD during Years 2 or 3; no longer teaching a STEAM subject; or no longer teaching students in Grades 4, 5, 6, 7, or 8. Criteria for the inclusion of students include students in Grades 4, 5, 6, 7, or 8 and whose teacher participated in DVP PD and chose to implement it in one of their STEAM subject-area classes. Criteria for the exclusion of students includes students who are not in Grades 4, 5, 6, 7, or 8; students who do not have a teacher that participated in DVP PD; and students whose teacher did not choose to implement it in their STEAM subject-area class. We are choosing to conduct research with children, a special population, in order to understand more fully the impact of DVP PD, including the impact of this PD on students.

Sources of Materials

During the DVP PD summer institutes, researchers will conduct observations and video recording the PD sessions. All teacher assessments completed during this PD will be reviewed. Additionally, participating teachers will be given a pre and post questionnaire. During the classroom implementation phases, classroom observations will be conducted. Student

assessments will be reviewed, and students will be given pre and post questionnaires. After classroom implementation, teachers will be interviewed individually, and teacher focus groups will be held. This material will be obtained specifically for research purposes.

Recruitment and Informed Consent

We will recruit teacher participants from the group of teachers who have agreed to participate in DVP PD. Prior to each summer institute, the post-doctoral fellow will email potential teacher participants following an Institutional Review Board (IRB)-approved script, introducing the study and inviting them to participate in the research. Consent forms will be included in these emails and can be returned electronically.

We will enlist participating teachers in recruiting student participants from the classes in which they have chosen to implement the DVP curriculum. These teachers will read an IRB-approved script to their classes and send consent and permission forms home with students to return to school in a sealed envelope. Participating students will return these forms to their teacher in the provided envelope, and their teacher will pass on these sealed envelopes to the post-doctoral fellow. No modification or waiver of consent has been sought through the IRB.

Potential Risks

There is a small risk that someone may find out that a teacher or student participated in the study or may view a participant's data. However, given the procedures we have in place, we believe this risk to be minimal.

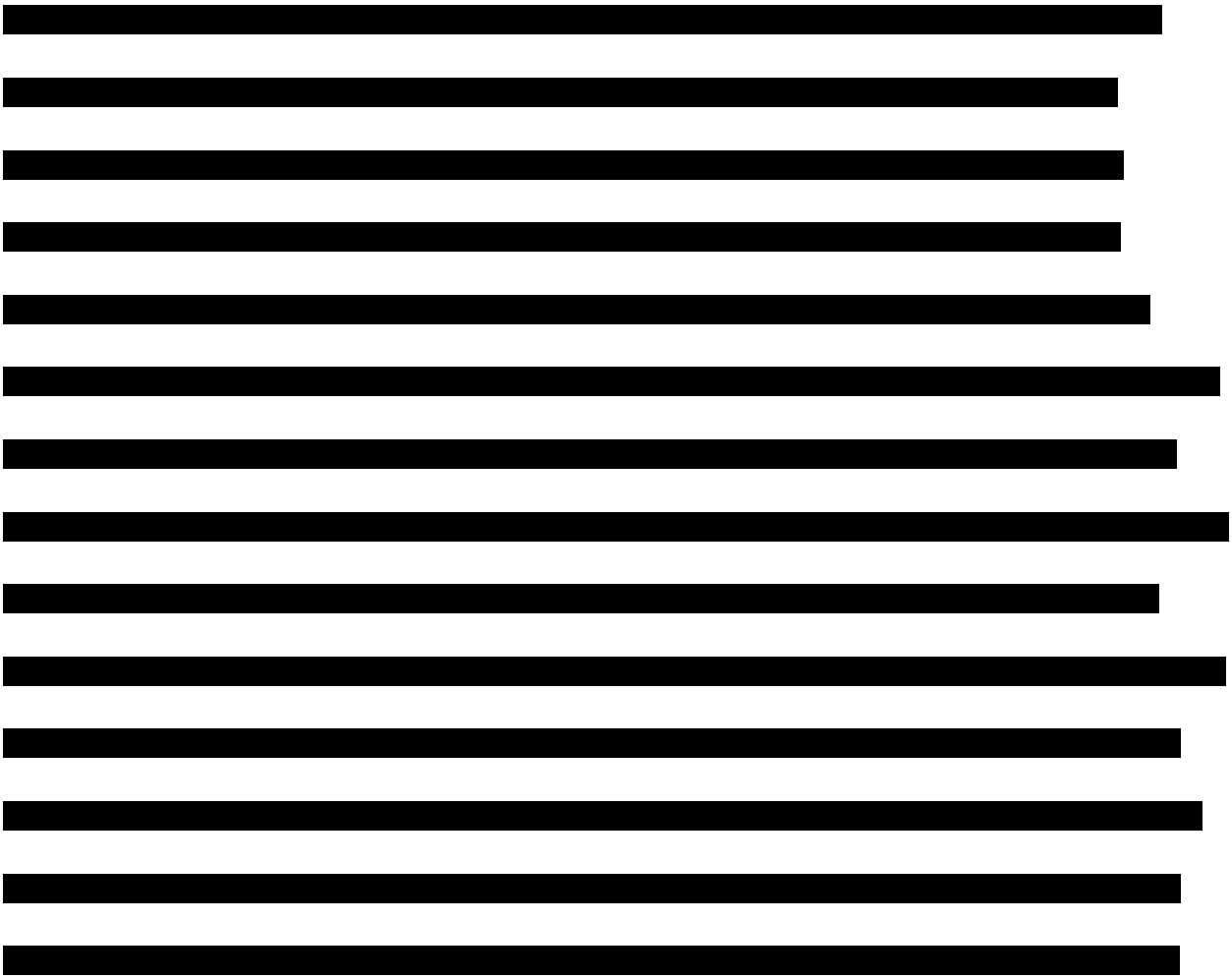
Protection Against Risk

Electronic data will be shared via a password-protected Google Drive only accessible to research team and data group members. Paper documents will be stored in a locked file cabinet in the PI's office. Confidentiality of the teachers and their schools and school districts will be

maintained by removing identifiers and replacing them with pseudonyms in all verbal and written references. Video and audio recordings will not be used directly in presentations or publications. Regarding images produced by teachers or students, identifiers will be blurred, covered, or cropped out prior to publication. Within three years following the conclusion of the study, paper documents will be shredded, electronic files purged, and electronic media, such as video recordings, securely erased.

Importance of the Knowledge Gained

Competency in interpreting data is incredibly important: it prepares citizens for democratic participation in society and as statistically-literate consumers (Gould, 2017).



[redacted] Both participant groups could benefit indirectly from the knowledge generated through this study, as teachers might gain insight into data visualization curriculum and teaching practices they might adopt, and students might benefit from their teachers' adoption of these approaches to data visualization.

Collaborating Site(s)

The PD location, expected to be held at the University of Tennessee, will be the first research site. Collaborating sites include the East TN schools where the participating teachers work, since these are the sites where the teachers will be implementing the curriculum. These sites will likely span across East TN with high-needs school districts having strong representation.

Abstract

The abstract narrative must not exceed one page and should use language that will be understood by a range of audiences. For all projects, include the project title (if applicable), goals, expected outcomes and contributions for research, policy, practice, etc. Include population to be served, as appropriate. For research applications, also include the following:

- Theoretical and conceptual background of the study (i.e., prior research that this investigation builds upon and that provides a compelling rationale for this study)
- Research issues, hypotheses and questions being addressed
- Study design including a brief description of the sample including sample size, methods, principals dependent, independent, and control variables, and the approach to data analysis.

[Note: For a non-electronic submission, include the name and address of your organization and the name, phone number and e-mail address of the contact person for this project.]

You may now Close the Form

You have attached 1 file to this page, no more files may be added. To add a different file, you must first delete the existing file.

* Attachment: 1234-Abstract.pdf | Add Attachment | Delete Attachment | View Attachment

Abstract

The **Data Visualization Project (DVP)** represents a partnership between the University of Tennessee and a group of LEAs and other partners in East Tennessee, the heart of Appalachia, a region with potential for broadening arts education participation and increasing data literacy. This STEAM project is intended to inspire and support Grade 4-8 students' representations of data, or "data visualizations," across arts and STEM learning contexts. [redacted]

While we have successfully piloted the data visualization curriculum associated with DVP in two art classrooms, it needs further refinement. DVP's objectives are to

1. Refine a transdisciplinary data visualization curriculum;
2. Develop a multidisciplinary data visualization professional development (PD) program;
3. Use design-based research to implement and refine data visualization PD with middle school arts and STEM teachers;
4. Evaluate the impact of the data visualization PD program on teachers and students; and
5. Disseminate the data visualization curricular materials, PD model, and effectiveness findings through a website as well as through informal and formal educational organizations at local, state, and national levels.

Spanning a four-year period, DVP's activity phases include the preparation, development, and piloting of curricular materials and artifacts in arts and STEM teaching contexts (Year 1); implementation and evaluation of two PD cycles (Years 2 through 4); and dissemination and expanding partnerships (Year 4).

The outcomes of this project will be measured in a coordinated effort across research and evaluation. The outcomes of the program implementation include

1. A tested and refined STEAM curriculum and PD model supporting Grade 4-8 students' data visualization;
2. Increased teacher competencies in designing and implementing data visualization curriculum effectively;
3. Increased student understandings of data visualization; [redacted] arts learning and dispositions, and positive attitudes toward STEM fields;
4. Enhanced student and teacher appreciation for the arts;
5. DVP products, resources, and learning disseminated through
    a. A project website
    b. Informal and formal educational organizations at local, state, and national levels, such as through webinars, conference presentations, publications, and exhibitions.

DVP meets the criteria for Competitive Preference Priority 1—Applications for New Potential Grantees. Partnering LEAs include Knox County Schools, Union County Public Schools, and Maryville City Schools. These partners along with the East TN STEM Hub will recruit PD participants. Importantly, teachers in the highest-need school districts throughout East Tennessee will receive priority when registering for PD. Additional partners include the Tennessee STEM Innovation Network, Muse Knoxville, Knoxville Museum of Art, Tennessee Council of Visual and Performing Arts Supervisors, Tennessee Art Education Association, and National Art Education Association's Data Visualization Working Group. These partners will support the dissemination of DVP products at local, state, and national levels.

Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1241-Project Narrative.pdf

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

Table of Contents

Application Narrative

Project Design

Goals, Objectives, and Outcomes

This science, technology, engineering, arts, and mathematics (STEAM) project, [redacted] is intended to inspire and support Grade 4-8 students' data visualizations across arts and STEM learning contexts. [redacted]

While we have successfully piloted the data visualization curriculum associated with the Data Visualization Project (DVP) in two East Tennessee (TN) Grade 4 and 6 art classrooms, this curriculum needs further refinement. DVP's objectives are to (1) refine a transdisciplinary data visualization curriculum; (2) develop a multidisciplinary data visualization professional development (PD) program; (3) use design-based research to implement and refine data visualization PD with middle school arts and STEM teachers; (4) evaluate the impact of the data visualization PD program on teachers and students; and (5) disseminate the data visualization curricular materials, PD model, and effectiveness findings.

The outcomes and related outcome measures (OM) of the program implementation include (1) a tested and refined STEAM curriculum and PD model supporting Grade 4-8 student data visualization *(OMs: completion; 80% of advisory panel members rate materials as exemplary)*; (2) increased teacher competencies in designing and implementing data visualization curriculum effectively *(OM: 80% of teachers design and implement curriculum*); (3) increased

student understandings of data visualization *(OM: 80% of students define one form of data visualization, provide an example, and explain how the work communicates patterns in the data)*;

[redacted] arts learning and dispositions *(OM: 5% increase on relevant arts dispositions [Hetland et al., 2013])*, and positive attitudes toward STEM fields *(OM: 20% increase*); (4) enhanced student and teacher appreciation for the arts *(OM: STEM teachers and students: 20% increase; arts teachers: 5% increase)*; and (5) DVP products, resources, and learning disseminated *(OMs: website completed with all DVP curricular and PD materials and research reports, 9 national conference presentations, 8 scholarly manuscripts, and 100% of dissemination activities established with partners completed)*.

Target Population's Needs

DVP is situated in East TN Appalachia. This region includes 33 counties with characteristics that make it unique and yet similar to other parts of the US:

- **It is predominantly rural**. 93% of TN counties are rural (US Census, 2010).
- **Pockets of poverty exist**. County poverty levels range from 14.4% to 27.7.% (Pollard et al., 2017), higher than the US poverty rate of 12.3% for 2018 (Semega et al., 2019).
- **Access to arts education is often limited in rural counties**. From 2016-2017, only 22% of TN students in "rural, remote" locales were enrolled in art (TAEDP, 2017). Many East TN counties had even lower enrollment: McMinn and Campbell, 11%; Hancock and Roane, 7%; Clairborne, 6%; Polk, 3%; Morgan, 1%; and Meigs and Bledsoe, 0% (TAEDP, 2017).
- **Negative or indifferent views toward STEM are present**. Close to 90% of teachers in our PD study (Hodge et al., 2018) described motivating students in STEM as a "top three"

teaching challenge. In 2018, only 31% of TN graduating high school students indicated interest in STEM compared to 45% nationally (American College Testing, 2018).

Some collective aspects of Appalachian identity include a high priority placed on family, place, and community (Catte, 2018); a distrust of outsiders, especially those positioned as "experts" (Russ, 2010); and a strong creative tradition in storytelling and art (Day, 2018).

Based upon regional needs and assets, DVP will draw on four key strategies:

- **Reaching communities of high need.** DVP recruitment efforts will target high-needs school districts: teacher applicants in these districts will receive first priority to attend.

[redacted] and offers non-arts teachers the opportunity to infuse arts education into their classrooms, expanding arts education where access to formal arts education is limited.

Implementation and Evaluation of Project

Dr. Pamela Bishop, Director of NISER, will serve as the lead external project evaluator. Dr. Bishop and her team at NISER will employ a comprehensive evaluation plan to evaluate the overall effectiveness and outcomes of the project activities. NISER will integrate strategies for formative and summative feedback about project activities using qualitative and quantitative methods. This ongoing, comprehensive evaluation will be aligned to intended project outcomes and will be utilization-focused (Patton, 2018), emphasizing the use of data-driven decision making by project leadership for continuous project improvement. Regular communication between the evaluation team and project leadership will ensure that data are interpreted appropriately and used formatively for project implementation improvement and summatively to measure progress toward attainment of goals to ensure the development of a robust model for project activities or strategies that may be replicated at other locations and in other contexts.

In addition to evaluation, DVP includes a substantial research component. The purpose of this research is to understand and generate knowledge, particularly within the fields of arts education, surrounding data visualization curriculum and PD. This research will inform our understanding of program components that could aid others in making decisions about whether to replicate these strategies. Research questions and data collection (DC) methods include:

1. How do *visual and media arts teachers*, who participate in a data visualization PD program, conceptualize and value art and arts education, data visualization, and STEAM? (DC: teacher questionnaires and interviews)
2. How do *STEM teachers*, who participate in a data visualization PD program, conceptualize and value art and arts education, data visualization, and STEAM? (DC: teacher questionnaires and interviews)

3. What art, STEM, and data visualization concepts and practices do *teachers*, who participate in a data visualization PD program, learn? (DC: teacher assessments and PD observations)
4. What art, STEM, and data visualization concepts and practices do *students*, whose teacher participated in a data visualization PD program, learn? (DC: classroom observations, student assessments and questionnaires)
5. What opportunities and challenges for learning does data visualization provide Grade 4-8 students? (DC: classroom observations, student assessments and questionnaires)
    a. How does participation in data visualization curriculum impact student engagement? (DC: classroom observations, student questionnaires)
    b. How do teachers perceive these opportunities and challenges, particularly in relation to their future teaching plans? (DC: teacher interviews and focus groups)

Adherence to Statutory Purposes and Requirements

Situated in Appalachia, DVP is a four-year Assistance in Arts Education project that focuses on supporting Grade 4-8 data visualization learning. It meets all program requirements:

- DVP curriculum, building upon two earlier curriculum pilots, will undergo development, testing, and refinement processes through a cycle of design research (Year 1).
- DVP PD will be designed, implemented, evaluated, and refined through two cycles of design research (Year 2 and 3).
- DVP products, including accessible curricular and instructional materials, PD programming, and research, will be disseminated through a DVP website, partnering organizations, and other team member efforts (Year 4).
- DVP will coordinate outreach activities that strengthen and expand partnerships among LEAs, communities, arts and STEAM museums and networks, and arts education

professional organizations. Activities include [redacted] newsletter blurbs, webinars, conference presentations, publications, professional organization discussion forums posts, and a website.

We can confirm federal funds will not supplant non-federal funds. As a higher education institution, the requirement that LEA applicants provide U.S. Census data is not applicable.

Rationale

[redacted]

Rationale for outcome: Positive attitudes toward STEM. Research, across a variety of educational contexts, suggests STEAM educational experiences produce engaging learning environments (Jesionkowska et al., 2020) and can lead to positive affective student outcomes: increased student interest in science (Grimberg et al., 2019; Jeong & Kim, 2015; Kang, 2019); learning motivation (Lin & Tsai, 2021); self-efficacy in STEM (Ng & Fergusson, 2020); and desire to pursue STEM/STEAM careers (Kang, 2019; Ng & Fergusson, 2020; Wajngurt & Sloan,

2019). Likewise, teachers who implemented STEAM experienced positive perceptions of STEAM: they saw it as making science intriguing (Kang, 2019).

Rationale for outcomes: Arts learning, dispositions, and appreciation. According to Hetland et al. (2013), the arts cultivate certain dispositions—modes of thinking our society values—with the potential to transfer to other areas of learning. [redacted] While less research has been conducted on arts outcomes as a result of STEAM participation, a few studies suggest positive connections. Ng and Fergusson (2020), in a study of high school girls' experiences with STEAM, found girls perceived an increased aptitude for the arts and interest in pursuing arts careers, in addition to science careers. Moreover, Monkeviciene et al. (2020), in a study of STEAM in early childhood education, found students' artistic and communication competencies increased.

Project Services

Professional Development Services

[redacted]

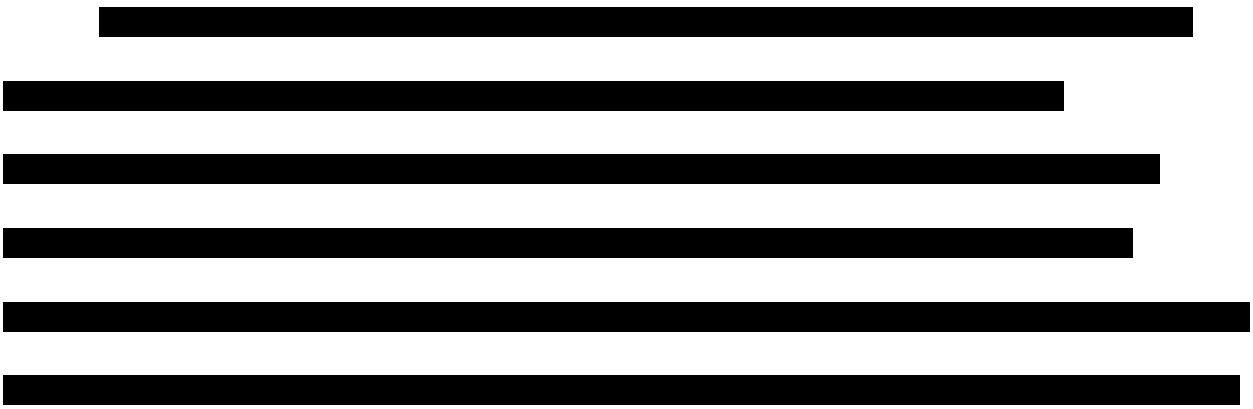
[redacted]

Improvements in Student Achievement

Research demonstrates STEAM participation can positively and significantly impact

STEM/STEAM content knowledge and achievement (Brouillette & Graham, 2016), particularly for girls (Cifaldi, 2018; Jeong & Kim, 2015). Curricula capable of producing such outcomes is particularly crucial in East TN, where student achievement in STEAM subjects is a concern. ACT data show that only 28% of TN students taking the ACT reach science college readiness and only 28% also reach the math benchmark (American College Testing, 2018); the national rate is 40% in science and 36% in math. Moreover, with few to no arts courses offered in many East TN schools, academic achievement in visual/media arts is oftentimes non-existent.

Turning to statistical learning, a substantial body of research shows inappropriate ideas about statistical concepts are widespread and persistent (Garfield & Ben-Zvi, 2007). Research reveals the complexities in and the importance of developing the notion of distribution (Wild, 2006). Creating a foundation for statistics learning, represented in Common Core Mathematics Standards Domains of (1) measurement and data and (2) statistics and probability, involves exploratory data analysis and the critical process of performing initial investigations on data to discover patterns, identify anomalies, test hypotheses, and check assumptions with the help of summary and representations. This kind of statistical learning can also create opportunities for mathematical learning such as shifting from additive to multiplicative reasoning, a significant milestone in upper-elementary and middle-school mathematics.



[redacted]

Impact of Services on Recipients

[redacted]

[redacted]

[redacted]

Collaboration with Appropriate Partners for Effective Project Services

Three East TN LEAs, Knox County Schools (KCS), Union County Public Schools, and Maryville City Schools, have agreed to partner with the University of TN on DVP. These districts and the East TN STEM Hub, have pledged to recruit for the PD and to share the final DVP products in their districts. Additionally, KCS, offering courses specifically in media arts and STEM, committed to arranging sites for the curriculum pilots in Year 1.

Additional DVP partners include STEM networks, art and STEAM museums, and arts educational organizations. These partners will be responsible for disseminating DVP products to their networks (see Table 1). Through these efforts, they will be endorsing these products and increasing the likelihood they will be adopted in local, state, and national educational settings.

Table 1. *Other Partner (Non-School District) Commitments*

Other Partners	**Description of Dissemination Efforts**
East TN STEM Hub	-share DVP website on their website
TN STEM Innovation Network	-include link to DVP website on their website -invite DVP team to share at their conference
Muse Knoxville (a STEAM museum)	-include link to DVP website on their website [redacted]

Knoxville Museum of Art	[redacted]
TN Council of Visual and Performing Arts Supervisors	-share DVP website with their members via email
TN Art Education Association	-describe project in their newsletter, blog, and social media with links to the DVP website
National Art Education Association (NAEA)	[redacted] -include link to DVP website on their website

- **Project Personnel**

Key project personnel include the project director and principal investigator (PI), co-principal investigator (Co-PI), senior personnel, evaluation team members, implementation team members, PD facilitators, advisory panel members, and a post-doctoral fellow. This DVP team is diverse, including people who are members of groups that have traditionally been under-represented, and individuals that show a commitment to equity and inclusion in their scholarship.

Joy G. Bertling, Assistant Professor of Art Education at the University of Tennessee, will serve as *Project Director, Leadership Team Member,* and *Lead PI*. Dr. Bertling has published widely within the fields of art education, focusing on the potential of critical place-based art education and data visualization. Her recent co-authored publications on data visualization include "The Case for Data Visualization in the Art Classroom," "Eco-Visualizations: Facilitating Ecological Relationships and Raising Environmental Awareness," and "Supporting Statistical Literacies in the Context of a Data Visualization Project with Elementary Students." She currently serves as Program Chair for two arts-focused American Educational Research Association (AERA) special interest groups.

Lynn Liao Hodge, Professor of STEM Education at the University of Tennessee, will serve as *Co-PI* and *Leadership Team Member*. Dr. Hodge currently serves as the Director of the Center for Enhancing Education in Mathematics and Sciences (CEEMS) and the Director of STEM education programs. A frequent recipient of external funding focusing on STEM topics and teaching, Dr. Hodge provides guidance for STEM teachers and students locally, and at state and national levels. Her research focuses on equity as it plays out in math classrooms.

Pamela Bishop, Director of the National Institute for STEM Evaluation and Research (NISER) and Associate Director for STEM Evaluation for NIMBioS at the University of Tennessee, will serve as *Evaluation Manager*. Dr. Bishop and her team have provided high quality, responsive external evaluation services to more than 40 projects in the STEM research and education sector since 2016. Dr. Bishop has held evaluation positions at both the state and federal level. Her evaluation expertise includes experience with site visit observations, participant and stakeholder interviews, survey methodology, evaluation and research design, network measures, and statistical analysis of data.

Sondra LoRe, Evaluation Manager at NISER, will serve as E*valuation Team Member* and will be supervised by Dr. Bishop. At NISER, Dr. LoRe assists with internal and external evaluations related to STEM programs and projects. She has nearly 20 years of experience in education, instruction, educational leadership, and evaluation with pre-K-20 programs and STEM schools. She has served as a Tennessee state teacher evaluator for 16 years. LoRe has a Ph.D. from the Evaluation, Statistics, and Measurement Program at the University of Tennessee.

Meredith York, Evaluation Specialist at NISER, will serve as E*valuation Team Member* and will be supervised by Dr. Bishop and the Evaluation Manager. Since 2008, Meredith York has been an employee of the University of Tennessee, working on multiple grants.

Heather Casteel, Fine Arts Specialist (Coordinator) for Knox County Schools, will serve as *Leadership* and *Implementation Team Member*. Dr. Casteel has overseen visual art education in her district for close to a decade. Dr. Casteel is a fine arts leader in the state, having played a leadership role in visual art standards adoption and leading state educational committees.

Katherine McKee, Roane County Schools' Middle School Science Teacher, will serve as *Leadership* and *Implementation Team Member*. Ms. McKee is an award-winning teacher with significant leadership experiences in STEM at local and state levels.

PD Facilitators include practicing visual and media arts teachers **Joshua Drews**, **Christopher Grodoski**, and **Ericka Ryba**; as well as math teacher, **Nicholas Kim**; and science teacher, **Katherine McKee**. Ranging from 6 to 20 years teaching experience, all of these facilitators have significant teaching experience in their respective fields; four have received Teacher of the Year awards, with three teachers receiving state and/or national teaching awards, and two have held national art education leadership positions. All have advanced degrees.

Teacher Advisory Panel Members include visual and media arts teachers, **Joshua Drews**, **Amanda Galbraith**, and **Ericka Ryba**; science teachers, **Adam Hunley** and **Ashley McNealy**; and math teacher, **Jonathan Reagan**. Similar to the PD facilitators, these teachers have advanced degrees and extensive teaching experience: 6 to 20 years. Additionally, the majority have held important educational leadership positions in their districts, states, and/or nationally. Many of these panel members have experience teaching data visualization in their classrooms.

Content Expert Advisory Panel Members include art education professors and leaders, **Christopher Grodoski**, **Richard Siegesmund**, and **Rebecca Williams**; studio art professor, **Caroline Covington**; journalism professor, **Nick Geidner**; and math education professor, **Shande King**. These panel members represent experts in the field of data visualization

education, with extensive experience teaching data visualization in their respective fields. Four of these members have multiple national publications on the topic of data visualization, and two panel members serve as members of NAEA's Data Visualization Working Group.

To reach members of groups traditionally underrepresented in the hiring of the post-doctoral fellow, DVP personnel will (1) define the position fairly broadly; (2) express our values of diversity and inclusion in the position statement; (3) ensure the search committee has completed STRIDE, University training designed to reduce implicit biases in hiring; and (4) search broadly, going beyond main recruiting channels to achieve a diverse applicant pool.

Quality of Management Plan

Plan to Achieve Objectives

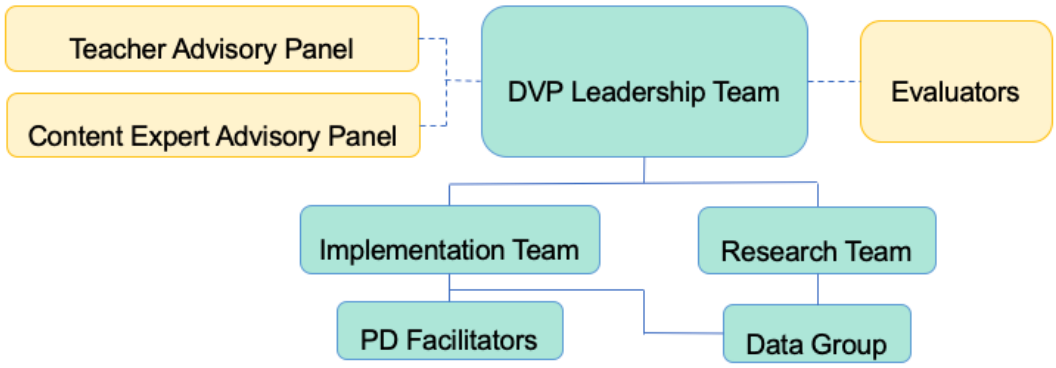


Figure 2. DVP Team Organization.

DVP will be achieve project objectives on time and within budget through coordinated efforts of a number of DVP teams (see Figure 2 and Table 2). Overall governance to accomplish these objectives will be provided by the *Leadership Team,* chaired by Project Director, Dr. Bertling. This team will oversee key working teams focused on project implementation and research. Meeting monthly, they will define responsibilities of project personnel, monitor the budget, review timelines and milestones, review project plans and activities based upon various forms of feedback. The *Implementation Team* will carry out their responsibilities related to the

design, testing, and refinement of curriculum; the design, implementation, and refinement of PD; and the coordination of PD facilitators. The *Research Team* will conduct and disseminate research throughout each stage of the process, with data collection support from the *Data Group*. The *Evaluation Team*, an external evaluation team from NISER, will provide the Leadership Team with regular feedback from the evaluation for ongoing project assessment. Advisory panels will review curriculum and PD design and materials biannually, during relevant years. Importantly, a post-doctoral fellow, in addition to participation in research, will serve as project coordinator, coordinating program logistics, data collection, and will work with graduate student workers to coordinate CLEs. See Table 3 for project tasks, milestones, and responsibilities.

Table 2. *DVP Team Composition*

Team	**Members**
Leadership	Joy Bertling, Lynn Hodge, Heather Casteel, Katherine McKee
Implementation	Joy Bertling, post-doctoral fellow, Heather Casteel, Katherine McKee, student workers
Research	Joy Bertling, Lynn Hodge, post-doctoral fellow, student workers
Evaluation	Pamela Bishop, Sondra LoRe, Meredith York
Data	post-doctoral fellow, student workers

Table 3. *Project Timeline with Key Tasks, Milestones, and Responsible Parties.*

Curriculum Refinement: Year 1 (October 1, 2021 - September 30, 2022)		
Time	**Key Tasks**	**Responsible Party**
Fall 2021	Hire a post-doctoral fellow	Leadership Team
	Identify and arrange two classes in which to pilot the curriculum	KCS

	Design curriculum for each pilot site	Implementation Team, Content Expert Advisory Panel
	Design the data collection measures to use in the pilot studies	Research Team
Spring 2022	Pilot the curriculum in two classes	Implementation Team
	Collect and analyze data on curriculum pilots	Data Group, Research Team
Summer 2022	Evaluate the curriculum	Evaluation Team
	Disseminate preliminary research findings	Research Team
	Refine the curriculum and data collection measures	Implementation Team, Content Advisory Panel, Research Team
Key Year 1 Milestones: Curriculum designed, implemented in a media arts and STEM class, researched and evaluated, and refined; data collection measures designed, implemented, evaluated, and refined; conference presentation proposals and research manuscripts submitted.		
PD Cycle 1: Year 2 (October 1, 2022 - September 30, 2023)		
Time	**Key Tasks**	**Responsible Parties**
Fall 2022	Plan Cycle 1 PD	Implementation Team, Advisory Panels
	Recruit for PD	Partners
Spring 2023	Select and confirm PD attendees	Implementation Team
	Refine PD materials	Implementation Team, Advisory Panels
	Design data collection measures for PD	Research Team
	Present at professional conferences	Research Team
	Orient PD facilitators to PD program	Implementation Team

Summer 2023	Host PD Cycle 1 summer institute and collect data	Implementation Team, PD Facilitators, Data Group
	Disseminate activities/preliminary findings	Research Team
Key Year 2 Milestones: PD materials and data collection measures designed; summer institute held (10 teachers); PD data collected; papers presented at conferences; conference presentation proposals and research manuscripts submitted; and NAEA webinar held.		
PD Cycle 2: Year 3 (October 1, 2023 - September 30, 2024)		
Time	**Key Tasks**	**Responsible Parties**
Fall 2023	Collect classroom implementation data	Data Group
	Host 1 CLE and collect data	Implementation Team, Data Group
	Evaluate PD Cycle 1	Evaluation Team
	Analyze PD Cycle 1 data	Data Group, Research Team
	Recruit for PD Cycle 2	Partners
Spring 2024	Select and confirm PD Cycle 2 attendees	Implementation Team
	Refine PD materials	Implementation Team, Advisory Panels
	Refine data collection measures for PD	Research Team
	Present at professional conferences	Research Team
	Orient PD facilitators to PD Cycle 2 program	Implementation Team
Summer 2024	Host PD Cycle 2 summer institute and collect data	Implementation Team, PD Facilitators, Data Group

	Disseminate finding related to PD Cycle 1 through conference presentation proposals and manuscript submissions	Research Team
Key Year 3 Milestones: 2 CLEs held; PD Cycle 1 classroom implementation and CLE data collected; PD materials and data collection measures refined; PD Cycle 2 summer institute held (40 teachers); PD data collected; conference papers presented; and conference presentation proposals and research manuscripts submitted.		
Dissemination: Year 4 (October 1, 2024 - September 30, 2025)		
Time	**Tasks**	**Responsible Parties**
Fall 2024	Collect data on PD Cycle 2 classroom implementation	Data Group
	Host PD Cycle 2 CLEs and collect data	Implementation Team Data Group
Spring 2025	Evaluate PD Cycle 2	Evaluation Team
	Analyze PD Cycle 2 data	Data Group and Research Team
	Present at professional conferences	Research Team
	Refine all curriculum and PD program materials	Implementation Team
	Develop DVP website	Implementation Team
	Gather feedback on DVP products from partners to make final refinements	Leadership Team, Partners
Summer 2025	Share DVP products and engage in outreach	Leadership Team, Partners
	Disseminate research findings	Research Team

Key Year 4 Milestones: 10 CLEs held, PD Cycle 2 classroom implementation and CLE data collected, PD materials refined, conference papers presentations, DVP website developed and shared, NAEA webinar held, and research manuscripts submitted

Procedures for Ensuring Feedback and Continuous Improvement

External evaluation of the DVP project will integrate formative and summative feedback about project activities to assess project outcomes, accomplishments, and lessons learned. This ongoing, comprehensive evaluation will emphasize the use of valid and reliable data by DVP leadership for continuous project improvement. Regular communication between the NISER evaluation team and project leadership will ensure data are used formatively for project improvement and summatively to provide valid and reliable performance data on relevant outcomes. In this longitudinal mixed-methods approach, qualitative data will be analyzed using open and axial coding for thematic analysis (Strauss & Corbin, 1990) and quantitative data will be summarized using descriptive statistics and parametric or nonparametric statistical analyses when appropriate. Quantitative and qualitative data will be synthesized and analyzed using the constant comparative method (Bogdan & Biklen, 2004) to generate understanding of how the project activities are working together within their contexts to achieve project goals. The external evaluation will provide ongoing feedback to project stakeholders to make data-informed decisions toward project improvement and to promote accountability through highlighted project accomplishments and challenges.

Evaluation of the project will be focused on use of evaluation findings by project decision-makers. NISER will provide the Leadership Team with regular feedback from the evaluation for ongoing assessment of the project via monthly meetings, data summary reports, and formal annual reports at the end of the fiscal year. Reports will include evidence-based

recommendations for project improvement in the form of actionable items that can be applied directly to project improvement. The reports will be provided to project leadership in advance of end-of-year meetings so that NISER personnel can discuss recommendations with the Leadership Team to develop a plan to implement needed changes. Discussions about the utility of evaluation findings will inform subsequent evaluation plan revisions to ensure that they meet project needs. A final summative report will examine (1) whether or not the project met its stated goals (outcomes), (2) aspects of the project that were integral to success (lessons learned), (3) intended and unintended outcomes of the project (accomplishments), and (4) aspects of the project that are sustainable beyond the grant's funding cycle.

Mechanisms for Ensuring High-Quality Products and Services

As the Teacher Advisory Panel and the Content Expert Advisory Panel are comprised of experts in various areas of teaching and data visualization, they will review primary project materials as well as data from the external evaluation team about process and outcome efficacy to ensure a comprehensive review of the quality of the project's products and services. Examples of materials to be reviewed include curricular materials, student assessment instruments and associated data, student visualization products resulting from participation, website content, teacher PD materials, and scholarly manuscripts. The Leadership Team will create rubrics for panel feedback on the quality of these items and will meet with the Content Expert Advisory Panel biannually in Years 1-3 and with the Teacher Advisory Panel biannually during Years 2-3.

Diversity of Perspectives Informing Project

To ensure a diversity of perspectives in DVP operation, we have assembled diverse project teams from various fields, such as visual arts and media arts education; math, science, and STEM education; journalism; and studio art; and from various educational roles, including

teachers, administrators, and professors. Additionally, we have two advisory panels designed to provide diverse perspectives, including teachers and various data visualization educational experts, on the curriculum and PD. Throughout the project, various participants and audiences will have the opportunity to provide input; we will administer short surveys to participating teachers, students, administrators, and CLE attendees. Subsequently, partners, which include members of the business community and professionals in a range of disciplinary and professional fields, will be asked to review our products in Year 4.

Quality of Project Evaluation

For a discussion of how external evaluation of the DVP project will integrate formative and summative feedback about project activities to assess project outcomes, accomplishments, and lessons learned, see the section "Procedures for Ensuring Feedback and Continuous Improvement" above. Additionally, see Table 4 below, which provides guiding formative and summative evaluation questions that will be answered using objective performance measures that are clearly related to the intended outcomes and related outcomes (OMs). To ensure the reliability and validity of evaluation results, methodological triangulation of evaluation data will be implemented by answering each evaluation question using at least two data sources (e.g. information gathered from perspectives of different stakeholder groups), as well as combining methods (e.g. interviews, focus groups, surveys, document analysis) (Patton, 2001).

Table 4. *Guiding Evaluation Questions and Performance Measurement Tools*

Stakeholder Group	**Evaluation Questions**	**Performance Measurement Tools**
DVP Teachers	• What percentage of teachers design and implement curriculum (OM: 80% participation)? (F, S)	• Analysis of program records such as

	• To what extent does participation in the project enhance teacher appreciation for the arts (OM: 20% increase in appreciation measures)? (F, S) • In what ways did teachers increase competencies in designing and implementing STEAM data visualization curricula effectively? (S) • Do teachers feel there was equal access for teachers who are members of groups traditionally underrepresented based on race, color, gender, national origin, age, or disability? (S)	recruitment, enrollment, and research engagement (biannual) • Analysis of research project findings (annual) • Teacher focus groups (biannual)
DVP Students	• To what extent are student involved in the program, including those from communities of high need? (F) • To what extent does participation increase student understandings of data visualization? (S) [redacted] • To what extent does engaging in the DVP curricula change student attitudes toward STEAM fields (OM: 5% positive increase)? (F, S) • How does DVP affect student appreciation for the arts (OM: 5% increase on relevant arts dispositions)? (S)	• Analysis of program records such as recruitment, enrollment, and research engagement (biannual) • DVP student surveys (on-site reflective-post) • Student focus groups/interviews (annual)

	• To what extent are students increasing statistical literacy? (F) [redacted]	• DVP Leadership Team interviews (annual) • Teacher focus groups (biannual)
Research Team	• Are the research instruments being developed as planned? (F) • What problems have arisen in the implementation of the research project? (F) • Do the research instruments provide the necessary information to inform the project research questions? (S) • Was the team successful in testing and refining a STEAM curriculum and PD model supporting Grade 4-8 students' data visualization? (S)	• Research team interviews (biannual) • Analysis of research instruments and data (upon completion) • Observation of Research Team meetings (as needed) • Teacher focus groups (biannual)
Implement-ation Team	• Are curricular materials being designed as planned? (F) [redacted] • Are the DVP PD programs being implemented as planned? (F) • How satisfied were PD facilitators with the training and	• Analysis of curricula and records (biannual) • Observations of planning meetings (monthly) • Implementation Team focus groups

	support provided during the implementations? (S) • What suggestions do the Implementation Team and PD facilitators have for improving preparation for the program? (F) • What suggestions does the Implementation Team have to improve the program overall? (S) • To what extent do advisory panel members rate the material as exemplary (OM: 80% exemplary)? (S)	(biannual) • PD facilitator focus groups (annual) • Teacher focus groups and student focus groups (biannual) • Advisory panel ratings reviews (as available)
DVP Partners	• To what extent are partners involved in the program? (F) • What value do DVP partners perceive the program is having in their communities? (F) • Did the partners recruit participants and disseminate DVP products to their networks as planned? (S) • Were DVP products disseminated as planned (OMs: website completed, 9 national conference presentations, 8 scholarly manuscripts, and 100% of dissemination activities established with partners completed)? (S)	• Analysis of program records (biannual) • Partner surveys of engagement (biannual) • Partner organization liaison interviews/ discussions (biannual)
Advisory Panels	• To what extent are the advisory panels involved in the program? (F) • What value do the advisory panels perceive the program is having on the various stakeholders? (F) • Has the program achieved its intended goals? (S)	• Analysis of program records (biannual) • Observation of panel meetings (biannual) • Panel member focus group (annual)

Bibliography

American College Testing (2018). *The Condition of College and Career Readiness 2018: Tennessee Key Findings.* http://www.act.org/content/dam/act/unsecured/documents/cccr2018/Tennessee-CCCR-2018.pdf

Archibald, S., Coggshall, J. G., Croft, A., & Goe, L. (2011). *High-quality professional development for all teachers: Effectively allocating resources*. https://gtlcenter.org/sites/default/files/docs/HighQualityProfessionalDevelopment.pdf

Bajak, A. (2014). Lectures aren't just boring their ineffective too, study finds. *Science*. https://www.sciencemag.org/news/2014/05/lectures-arent-just-boring-theyre-ineffective-too-study-finds

Ball, D. L. (1993). With an eye on the mathematical horizon: Dilemmas of teaching elementary school mathematics. *Elementary School Journal, 93*(4), 373–397. https://doi.org/10.1086/461730

Barajas-Lopez, F., & Bang, M. (2018). Towards Indigenous making and sharing: Implications for Mathematics Learning. In Rehumanizing Mathematics for Students who are Black, Indigenous, and Latinx. *NCTM Annual Perspectives in Mathematics Education*, 13–22.

Bogdan, R., & Biklen, S. (2003). *Qualitative research for education: An introduction to theories and methods*. Allyn and Bacon.

Brouillette, L., & Graham, N. J. (2016). Using arts integration to make science learning memorable in the upper elementary grades: A quasi-experimental study. *Journal for Learning through the Arts, 12*(1). https://doi.org/10.21977/d912133442

Catte, E. (2018). *What you are getting wrong about Appalachia*. Belt Publishing.

Cifaldi B. (2018). *Impact of a STEAM lab on science achievement and attitudes for girls* [Doctoral dissertation, University of South Carolina]. https://scholarcommons.sc.edu/etd/4927

Day, F. (2018, Dec. 6). *Personal Interview* with Dr. Fran Day.

Engel, J. (2017). Statistical literacy for active citizenship: A call for data science education. *Statistics Education Research Journal, 16*(1), 44-49. https://iase-web.org/documents/SERJ/SERJ16(1)_Engel.pdf

Garfield, J., & Ben-Zvi, D. (2007). How students learn statistics revisited: A current review research on teaching and learning statistics. *International Statistical Review, 75*, 372–396. https://doi.org/10.1111/j.1751-5823.2007.00029x

Grimberg, B. I., Williamson, K., & Key, J. S. (2019). Facilitating scientific engagement through a science-art festival. *International Journal of Science Education, 9*(2), 114-127. https://doi.org/10.1080/21548455.2019.1571648

Hetland, L., Winner, E., Veenema, S., & Sheridan, K. M. (2013). *Studio thinking 2: The real benefits of visual arts education* (2nd ed.). Teachers College Press.

Hodge, L., Cheng, K., King, S., & Kim, N. (2018). Elementary teachers' take-aways from summer math institutes in a three-year professional development project in rural Appalachia. *Proceedings of the 42nd annual meeting of the International Group for the Psychology of Mathematics Education*. Umea, Sweden: The University of Umea.

I-chen, H., Yi-hui, G., & Yu-Ti, C. (2017). *Polluted water popsicles* [Sculptural collection]. In Hunt (2017). Popsicles of pollution: Ice lollies highlight Taiwan's contaminated waterways. *The Guardian*.

https://www.theguardian.com/cities/gallery/2017/sep/01/popsicles-pollution-ice-lollies-taiwan-taipei-contaminated-waterways

Jeong, S. K., & Kim, H. (2015). The effect of a climate change monitoring program on students' knowledge and perceptions of STEAM education in Korea. *Eurasia Journal of Mathematics, Science, & Technology Education, 11*(6), 1321-1338. https://doi.org/10.12973/eurasia.2015.1390a

Jesionkowska, J., Wild, F., & Deval, Y. (2020). Active learning augmented reality for STEAM education—A case study. *Education Sciences, 10*, 15. https://doi.org/10.3390/educsci10080198

Johnson, M. (2007). The meaning of the body: Aesthetics of human understanding. Chicago University Press. https://doi.org/10.7208/chicago/9780226026992.001.0001

Kang, N. (2019). A review of the effect of integrated STEM or STEAM education in South Korea. *Asia-Pacific Science Education, 5*(6), 22. https://doi.org/10.1186/s41029-019-0034-y

Kraehe, A. M. (2018). Disciplinary borderlands. *Art Education, 71*(2), 4-7. https://doi.org/10.1080/00043125.2018.1414528

Ladson-Billings, G. (1997). It doesn't add up: African American students' mathematics achievement. *Journal for Research in Mathematics Education, 28*, 697–708. https://doi.org/10.5951/jreseatheduc.28.6.0697

Lin, C., & Tsai, C. (2021). The effect of a pedagogical STEAM model on students' project competence and learning motivation. *Journal of Science Education and Technology, 30*, 112-124. https://doi.org/10/1007/s10956-020-09885-x

Madsen, L. (2018). *Worry beads* [Sculpture]. http://www.lorenmadsen.com/

Miebach, N. (2009). *The weather score project* [Sculpture and musical score]. https://nathaliemiebach.com/weatherscores.html

Monkevicience, O., Autukevicience, B., Kaminskienne, L., & Monkevicius, J. (2020). Impact of innovative STEAM education practices on teacher professional development and 3-6-year-old children's competence development. *Journal of Social Studies Education Research, 11*(4), 27.

National Coalition for Core Arts Standards [NCCAS]. (2014). *National core arts standards.* www.nationalartstandards.org

Ng, W., & Fergusson, J. (2020). Engaging high school girls in interdisciplinary STEAM. *Science Education International, 31*(3), 283-294. https://doi.org/10.33828/sei.v31.i3.7

Patton, M. Q. (2001). *Qualitative evaluation and research methods* (3rd ed.). Sage.

Patton, M. Q. (2018). *Utilization-Focused Evaluation*. Sage.

Pollard, K., Jacobsen, L., & Population Reference Bureau (2017). *The Appalachian region: A data overview from the 2011- 2015 American community survey*. https://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=132

Russ, K. A. (2010). *Working with clients of Appalachian culture.* http://counselingoutfitters.com/vistas/vistas10/Article_69.pdf

Semega, J., Kollar, M., Creamer, J., & Mohanty, A. (2019). Income and poverty in the United States: 2018. *The U. S. Census Bureau*. https://www.census.gov/data/tables/2019/demo/income-poverty/p60-266.html

Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage.

Tennessee Arts Education Data Project [TAEDP]. (2017). *TN data*. http://tnartseducationdataproject.org/tn-data/

Thorp, J. (2011, November). *Make data more human* [Video file]. https://www.ted.com/talks/jer_thorp_make_data_more_human?language=en

U. S. Census Bureau (2010). *Decennial Census of Population*. https://www.census.gov/programs-surveys/decennial-census/decade.2010.html

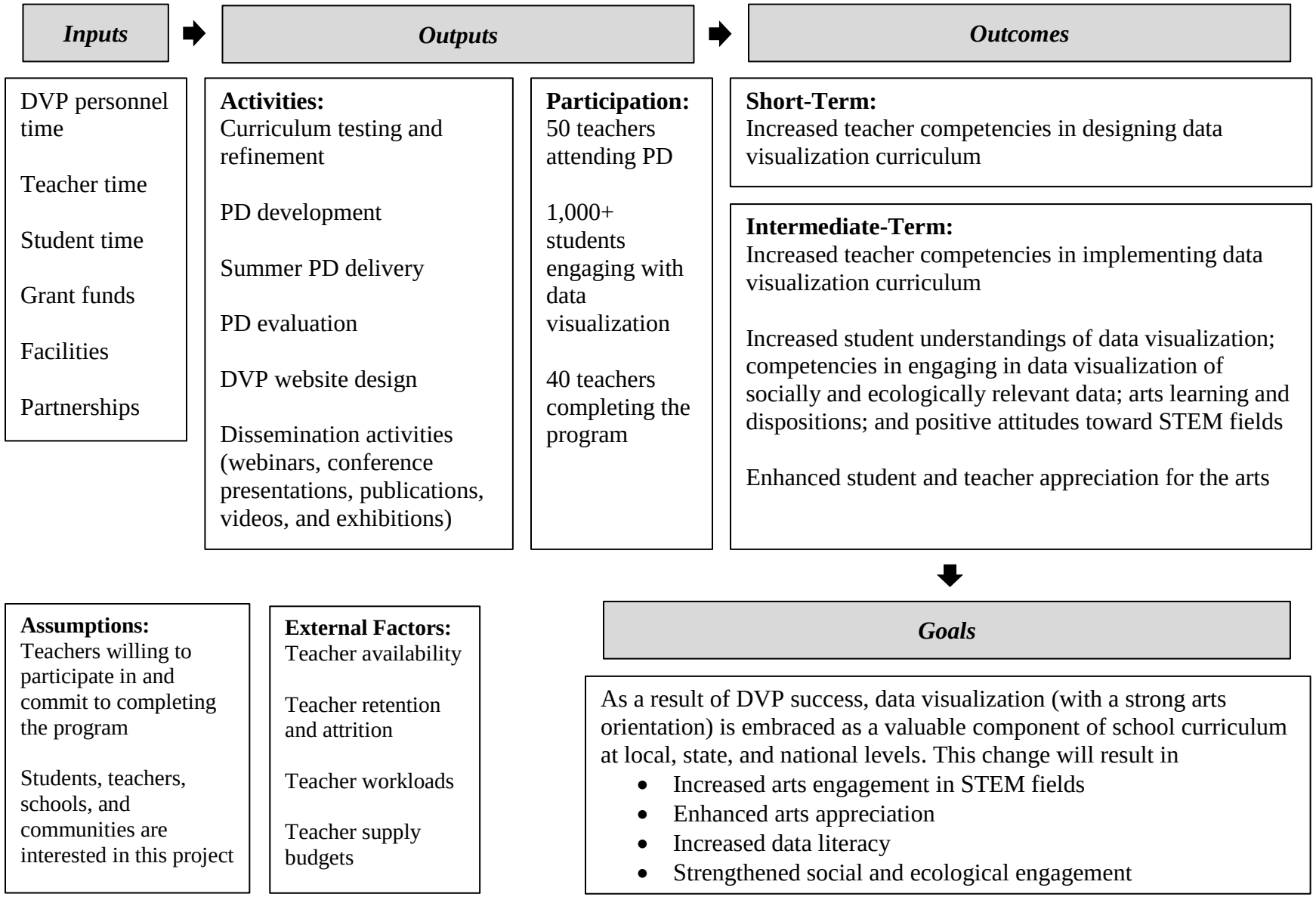
Virginia Department of Education. (2004). *High-quality professional development criteria*. https://www.doe.virginia.gov/teaching/regulations/high_quality_prof_dev_criteria.pdf

Wajngurt, C., & Sloan, P. J. (2019). Overcoming gender bias in STEM: The effect of adding the arts (STEAM). *Insight: A Journal of Scholarly Teaching, 14,* 13-28. https://doi.org/10.46504/14201901wa

Wild, C. (2006). The concept of distribution. *Statistics Education Research Journal, 5*(2), 10-26.

Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Shapley, K. L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement.* https://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL_2007033.pdf

DVP Logic Model



Other Attachment File(s)

*** Mandatory Other Attachment Filename:** 1237-Resumes.pdf

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

Joy Gaulden Bertling

[redacted]

CURRICULUM VITAE

EDUCATION

Doctor of Philosophy, Art Education, December 2012
University of Georgia, Athens, GA

Master of Education, Art Education, 2007
Converse College, Spartanburg, SC

Bachelor of Arts, Art Education, *summa cum laude*, 2005
Converse College, Spartanburg, SC

PROFESSIONAL EXPERIENCE

2018-present	**Assistant Professor & Instructional Team Leader** Department of Theory and Practice in Teacher Education University of Tennessee, Knoxville, TN
2015-2018	**Clinical Assistant Professor & Instructional Team Leader** Department of Theory and Practice in Teacher Education University of Tennessee, Knoxville, TN
2007-2015	**Middle School Art Teacher** McCracken Middle School/McCracken Junior High School Spartanburg School District 7, Spartanburg, SC
2005-2007	**Elementary Art Teacher** Foster Park Elementary School Union County School District, Union, SC

SELECTED PUBLICATIONS

Bertling, J. (In press). (Com)postmodernity: Artists cultivating a lust for mortality. *Art Education, 74*(4).

Bertling, J. (In press). Opening Thirdspace: Cultivating critical geographies in art teacher education. *Visual Inquiry: Learning and Teaching, 10*(1). [special issue].

Hodge, L., King, S., & Bertling, J. (In press). Supporting statistical literacies in the context of a **data visualization** project with elementary students. In P. Short, H. Hensen, & J. McConnell (Eds.), *Cultivating a scientific mindset in the age of inference.* Information Age.

Bertling, J., Hodge, L., & King, S. (2021). The case for **data visualization** in the art classroom. *Art Education, 74*(2), 44-49.

Bertling, J. & Moore, T. (2021). The United States K-12 art education curricular landscape: A nationwide survey. *Studies in Art Education, 62*(1).

Bertling, J., & Moore, T. (2021). A portrait of environmental integration in United States K-12 art education. *Environmental Education Research, 27*(3), 20. Advance online publication.

Dean, K. & Bertling, J. (2020). **Eco-visualizations**: Facilitating ecological relationships and raising environmental awareness. *Art Education, 73*(3), 54-61.

Bertling, J. & Moore, T. (2020). U.S. art teacher education in the age of the Anthropocene. *Studies in Art Education, 61*(1), 46-63.

Bertling, J. (2020). Expanding and sustaining arts-based educational research as practitioner inquiry. *Educational Action Research, 28*(4), 626-645.

Rearden, K. & Bertling, J. (2019). From sharks to "The Big Ugly": A rural art teacher's transition to place-based education. *Rural Educator, 40*(3), 49-61.

Bertling, J. (2019). Layered collaborative visual reflection: Sharing lived experiences and making meaning. *Art Education, 72*(3), 28-38.

Bertling, J. (2018). Non-place and the future of place-based education. *Environmental Education Research, 24*(11), 1627-1630.

Bertling, J. & Rearden, K. (2018). Professional development on a sustainable shoestring: Propagating place-based art education in fertile soil. *Discourse and Communication for Sustainable Education, 9*(2), 5-20.

Bertling, J. (2017). Metaphoric cartography as dual-layered practitioner inquiry: Arts-based educational research in the construction of place. *Journal of Curriculum and Pedagogy*, *14*(2), 91-105.

Bertling, J. (2017). Internship terrains: Psychogeographically mapping place. *International Journal of Education through Art, 13*(2), 261-269.

Bertling, J. (2015). The art of empathy: A mixed methods case study of a critical place-based art education program. *International Journal of Education & the Arts*, *16*(13), 1-26.

Bertling, J. (2013). Exercising the ecological imagination: Representing the future of place. *Art Education, 66*(1), 33-39.

Bertling, J. (2013). Empathetic engagement with artwork: New insights from neuroscience. *Translations: From Theory to Practice, Spring*, 1-5.

SELECTED GRANTS AWARDED

Research Grants

Bertling, J. (2020). National Art Education Foundation Research Grant. *High Ecological Integration within US Art Teacher Education: A Collective Case Study,* $10,500.

Bertling, J. (2019). University of Tennessee Professional and Scholarly Development Awards. *U.S. K-12 Art Education in the Age of the Anthropocene,* $5,000.

Bertling, J. (2018). National Art Education Foundation Research Grant. *U.S. Art Teacher Education in the Age of the Anthropocene*, $10,000.

Hodge, L., Bertling, J., & Lawson, M. (2017). University of Tennessee Community Engagement Research Seed Grant. *Mathematizing, Visualizing, and Power: Students Creating Scientific* ***Statistical Literacies*** *through Popular Representations*, $6,362.

Teaching and Program Grants

Bertling, J. (2014). South Carolina Arts Commission Arts in Education Teacher Standards Implementation Grant. *Daring to Draw Digitally*, $710.

Bertling, J. & Welchel, A. (2009). South Carolina State Department of Education's Distinguished Arts Program Grant. *Moving Forward with the Arts at McCracken,* $14,678.

Bertling, J. (2009). South Carolina Arts Commission Artist-in-Residence Grant. *Comic Artist-in-Residency*, $750.

Bertling, J. (2008). South Carolina State Department of Education's Distinguished Arts Program Grant. *Moving Forward with the Arts at McCracken,* $20,000

Bertling, J. (2007). South Carolina Arts Commission Arts in Basic Curriculum (ABC) Grant. *Foster Park Elementary*, $7,500.

Bertling, J. (2007). South Carolina State Department of Education Arts Curricular Special Projects Grant. *Digital Photography Curriculum and Implementation*, $4,973.

Bertling, J. (2007). South Carolina Arts Commission Comprehensive Planning Grant. *Creating a Five-Year Strategic Plan for the Arts*, $1,500

Bertling, J. (2007). South Carolina Arts Commission Quickstart Grant. *Dance Infusion at Foster Park Elementary School*, $750.

Bertling, J. (2006). South Carolina Arts Commission Comprehensive Planning Grant. *Foster Park Elementary Comprehensive Planning*, $3,597.

Bertling, J. (2006). South Carolina State Department of Education Strategic Planning Grant. *Fine Art Curriculum Implementation for the Elementary Level*, $3,000.

Bertling, J. (2006). South Carolina Arts Commission Artist-in-Residence Grant. *Dance Infusion Residency*, $1,500.

Bertling, J. (2005). South Carolina State Department of Education Strategic Planning Grant. *Fine Art Curriculum Development for the Elementary Level*, $3,000.

Bertling, J. (2005). South Carolina State Department of Education Improvement Act (EIA) Grant. *Escape into Landscapes*, $550.

PROFESSIONAL TEACHING CERTIFICATION

Tennessee Teaching Certification, Art, 2019-2025
National Board for Professional Teaching Standards Certification, 2009-2019
South Carolina Teaching Certification, Art, Gifted Endorsed, 2005-2019

LYNN LIAO HODGE
Curriculum Vitae
September, 2020

[redacted]

EDUCATION

2002	Ph.D. Education and Human Development, Major Area: Mathematics Education, Vanderbilt University
1993	M. S. Secondary Education, Vanderbilt University
1989	B. S. Electrical and Computer Engineering, The University of Tennessee

CERTIFICATIONS

1991	Secondary Mathematics Teaching Certification
1992	Physics Teaching Certification

CURRENT APPOINTMENTS

2020 – present	Assistant Department Head, Theory and Practice in Teacher Education
2019 – present	Professor, Mathematics Education, The University of Tennessee
2017 – present	Director, VolsTeach, The University of Tennessee
2016 – present	Director, The Center for Enhancing Education in Mathematics and Sciences (CEEMS), The University of Tennessee

PRIOR APPOINTMENTS

2011 – 2019	Associate Professor, Mathematics Education, The University of Tennessee
2006 – 2011	Assistant Professor, Mathematics Education, The University of Tennessee
2004 – 2006	Assistant Professor, Mathematics Education, The University of Alabama
2002 – 2004	Postdoctoral Fellow, *Identity and Adaptive Expertise in Bioengineering*, Principal Investigator: John Bransford, The Learning Sciences Institute, Vanderbilt University
2001 – 2002	Research Associate, *Understanding Preservice Teachers' Conceptions of Social Justice, Culture, and Student Learning*, Principal Investigator: Alfredo Artiles, Vanderbilt University
1996 – 2001	Research Assistant, *Supporting Students' Understanding of Statistical Data Analysis*, Principal Investigators: Paul Cobb and Kay McClain, Vanderbilt University.
1998 – 1999	Instructor, Peabody College, Vanderbilt University

1992 – 1996	Mathematics Teacher, Meigs Middle School, Nashville, TN
1991 – 1992	Mathematics Teacher Intern, W. A. Bass Middle School, Nashville, TN
Fall, 1991	Mathematics Teacher Intern, Hunters Lane High School, Nashville, TN
1989 – 1991	Electrical and Systems Engineer, Intergraph Corporation, Huntsville, AL

AWARDS AND HONORS

Louie M. and Betty M. Phillips Faculty Support in Education Award, The College of Education, Health, and Human Sciences, The University of Tennessee, 2020

Interdisciplinary Partnership in Research, VolsTeach for Appalachia, The University of Tennessee, 2019

Frank G. Harvey Professorship, The College of Education, Health, and Human Sciences, The University of Tennessee, 2018

Collaboration in the Field Award, The Department of Theory and Practice in Teacher Education, The University of Tennessee, 2017

Nominated by department for Chancellor's Honors Award for Professional Promise in Research and Creative Achievement, 2008

Awardee, Postdoctoral fellowship; The Learning Sciences Institute; Vanderbilt University, 2002-2004

Otto Bassler Outstanding Dissertation Award, Peabody College, Vanderbilt University, 2002

The Torchbearer Award, The University of Tennessee, 1989

RESEARCH AND/OR SCHOLARLY PUBLICATIONS

Selected Articles published in refereed journals

Bertling, J., Hodge, L., & King, N. (2021). The case for data visualization in the art classroom. *Art Education*.

Hodge, L., & Cobb, P. (2019). Two views of culture and their implications for mathematics teaching and learning. *Urban Education*, *51*, 1-25.

Hodge, L., & Wagener-Riva, L. (2018). Understanding women's experiences in graduate mathematics through a focused identity lens. *International Research in Higher Education*, 3(2), 112-124.

Hodge, L., & Lawson, M. (2018). Strengthening partnerships through family math nights. *Mathematics Teaching in the Middle School*, *23*(5), 284 – 287.

Hodges, T. E., & Hodge, L. (2017). Unpacking personal identities for teaching mathematics within the context of prospective teacher education. *Journal of Mathematics Teacher Education*, *20*(2), 101-118.

Hodge L., & Walther, A. (2017). Building a discourse community: Initial Practices. *Mathematics Teaching in the Middle School*, *22*(7), 430-437.

Funded Research

External Grants: Funded and in Progress

Hodge, L. (October, 2020 – June, 2021). *The East Tennessee STEM Hub of the Tennessee STEM Innovation Network* (TSIN). Battelle Memorial Institute and the Tennessee State Department of Education, $36, 202.

Hodge, L., & Kim, N. (August, 2020 – July 2020). *Growing STEM Teachers to Grow the Tennessee STEM Workforce*. The Appalachian Regional Commission, $123,823.

Hodge, L., Rosenberg, J., & Sadovnik, A. (October, 2019 – September, 2021). *CS for Appalachia: A Research-Practice Partnership to Integrate Computer Science into Rural East Tennessee Schools*. The National Science Foundation, $252, 453.

Hodge, L, Barker, K. Riechert, S., & Long, L. (July, 2018 – July, 2023). *VolsTeach for Appalachia: Strengthening the STEM Teacher Pathway from Community College to East Tennessee High-need School Districts*. National Science Foundation, $1,445,000.

Selected External Grants: Completed

Hodge, L. (September, 2019 – June, 2020). *The East Tennessee STEM Hub of the Tennessee STEM Innovation Network* (TSIN). Battelle Memorial Institute and the Tennessee State Department of Education, $35, 858.

Hodge, L. (September, 2018 – June, 2019). *The East Tennessee STEM Hub of the Tennessee STEM Innovation Network* (TSIN). Battelle Memorial Institute and the Tennessee State Department of Education, $36,824.

Stanley, G., Hodge, L., & Lashley, T. (February 1, 2017 – April 15, 2019). *Math Counts 3*. Funded by the Tennessee Department of Education, Math and Science Partnership, $325,000.

Stanley, G., Hodge, L., & Lashley, T. (February, 2016 – December, 2016). *Math Counts 2*. Funded by the Tennessee Department of Education Math and Science Partnership, $325,000.

Hodge, L., Lenhart, S., Sturner, K., & Walther, A. (January, 2016 – December, 2016). *Connecting Math and STEM Through Modeling*. Funded by the Tennessee Higher Education Commission, $65,809.

Stanley, G., Hodge, L., & Lashley, T. (November, 2014 – December, 2015). *Math Counts*. Funded by the Tennessee Department of Education Math and Science Partnership, $338,179.

NSF BIOGRAPHICAL SKETCH

NAME: Bishop, Pamela

[redacted]

POSITION TITLE & INSTITUTION: Director, National Institute for STEM Evaluation and Research

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
University of Tennessee	Knoxville, TN	Plant Sciences	BS	2002
University of Tennessee	Knoxville, TN	Entomology and Plant Pathology	MS	2005
University of Tennessee	Knoxville, TN	Evaluation, Statistics and Measurement	PHD	2012

(b) APPOINTMENTS

2016 - present Director, National Institute for STEM Evaluation and Research, University of Tennessee, Knoxville, TN

2015 - present Adjunct Faculty, Educational Psychology and Counseling, University of Tennessee, Knoxville, TN

2015 - 2019 Associate Director for STEM Evaluation, The National Institute for Mathematical and Biological Synthesis, University of Tennessee, Knoxville, TN

2009 - 2015 Evaluation Manager, National Institute for Mathematical and Biological Synthesis, University of Tennessee, Knoxville, TN

2007 - 2009 Evaluation Research Assistant, Oak Ridge Institute for Science and Education, Oak Ridge, TN

2006 - 2007 State Evaluation Coordinator, Mathematics and Science Partnership Program, University of Tennessee, Knoxville, TN

(c) PRODUCTS

Products Most Closely Related to the Proposed Project

1. Taylor RT, Bishop PR, Lenhart S, Gross LJ, Sturner K. Development of the BioCalculus Assessment (BCA). CBE Life Sci Educ. 2020 Mar;19(1):ar6. PubMed PMID: 32058833.
2. Hampton S, Halpern B, Winter M, Balch J, Parker J, Baron J, Palmer M, Schildhauer M, Bishop P, Meagher T, Specht A. Best Practices for Virtual Participation in Meetings: Experiences from Synthesis Centers. The Bulletin of the Ecological Society of America. 2017 January; 98(1):57-63. Available from: http://doi.wiley.com/10.1002/bes2.1290 DOI: 10.1002/bes2.1290
3. Sturner K, Bishop P, Lenhart S. Developing Collaboration Skills in Team Undergraduate Research Experiences. PRIMUS. 2016 June 23; 27(3):370-388. Available from: https://www.tandfonline.com/doi/full/10.1080/10511970.2016.1188432 DOI: 10.1080/10511970.2016.1188432

4. Duncan SI, Bishop P, Lenhart S. Preparing the "new" biologist of the future: student research at the interface of mathematics and biology. CBE Life Sci Educ. 2010 Fall;9(3):311-5. PubMed PMID: 20810963; PubMed Central PMCID: PMC2931678.

Other Significant Products, Whether or Not Related to the Proposed Project

1. Baron J, Specht A, Garnier E, Bishop P, Campbell C, Davis F, Fady B, Field D, Gross L, Guru S, Halpern B, Hampton S, Leavitt P, Meagher T, Ometto J, Parker J, Price R, Rawson C, Rodrigo A, Sheble L, Winter M. Synthesis Centers as Critical Research Infrastructure. BioScience. 2017 August; 67(8):750-759. Available from: https://academic.oup.com/bioscience/article/67/8/750/3858873 DOI: 10.1093/biosci/bix053
2. Bishop P, Sorochan J, Ownley B, Samples T, Windham A, Windham M, Trigiano R. Resistance of Sclerotinia homoeocarpa to Iprodione, Propiconazole, and Thiophanate-Methyl in Tennessee and Northern Mississippi. Crop Science. 2008 July; 48(4):1615-1620. Available from: http://doi.wiley.com/10.2135/cropsci2007.11.0635sc DOI: 10.2135/cropsci2007.11.0635sc

(d) SYNERGISTIC ACTIVITIES

1. External evaluator for multiple NSF STEM education and research projects 2008-present
2. Lead developer of webinar series: NSF INCLUDES Evaluation-Focused Webinars. Feb-June 2018.
3. Invited webinar presenter for National Academies of Sciences, Engineering, and Medicine. Webinar topic: Evaluating Data Science Programs, fall 2017
4. Invited Working Group Leader, Howard Hughes Medical Institute Constellation Studios Meeting for Undergraduate Biology Education, spring 2017
5. Organizer and Co-PI of NSF INCLUDES evaluation conference, tutorial, and webinar: “Multi-Scale Evaluation in STEM Education” 2017

Heather Romaine Casteel

[redacted]

Education

Ph.D. **The University of Tennessee, Knoxville.** Educational Leadership & Policy Studies, 2018.

M.S. **The University of Tennessee, Knoxville.** Art Education, 2005.

B.F.A. *magna cum laude,* **The University of Tennessee, Knoxville.** Studio Art- Watercolor Concentration, Art Education, 2004.

Professional Experience

- Fine Arts Content Specialist. *Teaching and Learning Department*. Knox County Schools. 2019-present
- Visual Arts Content Specialist. *Curriculum and Instruction Department*. Knox County Schools. 2012-2019
- Adjunct Instructor. *Art Education (ARED 540).* University of Tennessee. Fall 2016, Fall 2018
- Portfolio Coordinator. Knox County Schools. 2013-2018
- Visual Arts Teacher. *Christenberry Elementary*. Knox County Schools. 2005-2012

Selected Board & Association Membership

- Education Advisory Board Member. McClung Museum of Natural History and Culture. 2018-present
- Board Member. *Administration Division.* Tennessee Art Education Association. (Member, 2012-present) 2016-2019
- Chair. Tennessee Visual and Performing Arts Supervisor Council. (Member, 2012-present) 2016-2020
- Education Committee Member. Knoxville Museum of Art. Knoxville, TN. 2015-2018

Selected Leadership Experience

- Committee Member. *Conference Planning Committee.* Tennessee Art Education Association. 2018-2020
- Treasurer. *Art Source: An Exhibition of Knox County Schools Art Educators.* Knox County Schools. 2013-present

- Visual Arts Representative. *Fine Arts Textbook and Instructional Materials Selection Panel.* Tennessee Department of Education. Nashville, TN. 2017
- Division Leader: Visual and Media Arts. *Fine Arts Standards Revision Committee.* Tennessee Department of Education. Nashville, TN. 2016

Selected National Presentations

- "Teacher Mentorship Programs That Work" *Annual Conference.* National Art Education Association. Boston, MA. 2019
- "TN Portfolio System: Teacher Leadership in the Peer Review Process" *Annual Conference*. National Art Education Association. Chicago, IL. 2016

Selected State Presentations

- "Artivism" *Keynote Speaker*. Tennessee Art Education Association. Gatlinburg, TN. 2018
- "Big Policy Topics: Impact>Policy>Impact" *Keynote Speaker*. Tennessee Art Education Association. Nashville, TN. 2016

Certifications

- Instructional Leader License- *Beginning*. expires 2022
- Teacher License- *Professional*, Visual Arts K-12. expires 2027

Selected Honors, Awards, and Grants

- Administration Art Educator of the Year, Tennessee Art Education Association 2018
- East Tennessee Art Educator of the Year, Tennessee Art Education Association. 2012

CAROLINE COVINGTON

PROFILE

Caroline Covington is a highly personable, versatile, and experienced artist eager to teach at the collegiate level.

Her current work exposes common anxieties and apprehensions felt towards the myths of the past and the uncertainties of the future, often revealed through rituals, superstitions, and rites of passage. She has exhibited in Baltimore, MD, Washington, DC, Athens, GA, Atlanta, GA, and Charlotte, NC, and conducted performances in Philadelphia, PA, St. Petersburg, Russia, and Baltimore, MD.

EDUCATION

2012 **Master of Fine Arts in Sculpture**
Certificate in the College Teaching of Art
Maryland Institute College of Art (MICA), Rinehart School of Sculpture
Baltimore, MD

2007 **Bachelor of Fine Arts in Sculpture**
Bachelor of Arts in Art History
University of Georgia, Lamar Dodd School of Art
Athens, GA

EXHIBITIONS
SOLO:

2012 *MFA Thesis Show III*, MICA, Baltimore, MD
Chop, Student Space Gallery, MICA, Baltimore, MD
Knife, Performance Piece, MICA, Baltimore, MD

2011 *Beatings: Baltimore*, Performance Piece, Baltimore, MD

2010 *Extraction*, Performance Piece, MICA, Baltimore, MD

2007 *Slender Rest*, University of Georgia, Athens, GA

2006 *I Can See a Lot of Life in You*, Performance Piece, University of Georgia, Athens, GA

2005 *Within*, University of Georgia, Athens, GA

JURIED:

2012 *Unite!*, Gallery 500, MICA, Baltimore, MD

2011 *2011 Academy Show*, Conner Contemporary Gallery, Washington, DC

2010 *Touchy-Feely*, MICA, Baltimore, MD

2009 *Dugg Dugg Presents*, Dugg Dugg Gallery, Charlotte, NC

2006 *73 Miles*, Georgia State University, Atlanta, GA

GROUP:

2011 *Rhino-cuts*, MICA, Baltimore, MD
First Year MFA Candidate Show, MICA, Baltimore, MD

2010 *Some Condiments*, MICA, Baltimore, MD

2007 *My Shattered Little World*, University of Georgia, Athens, GA

2006 *IVirus*, University of Georgia, Athens, GA
Yoke, University of Georgia, Athens, GA

CAROLINE COVINGTON

TEACHING EXPERIENCE

Spring 2013 **3D Studio Technician: Mold Making & Casting**, University of Tennessee, Knoxville, TN
With Professor Jason Brown, assist with combined lower and upper level Sculpture courses *Mold Making and Casting/Advanced Mold Making and Casting*. Utilize mold making techniques with ceramic shell and sand resin to cast bronze, aluminum, and (anticipated) iron. Maintain Open Studio hours for individual work with students and offer guidance on material selection, safe equipment practices, and idea development.

Fall 2012 **3D Studio Technician: Metal Fabrication,** University of Tennessee, Knoxville, TN
With Professor Jason Brown, assisted with combined lower and upper level Sculpture courses *Metal Fabrication/Advanced Metal Fabrication.* Helped demonstrate proper and safe use of Metal Shop equipment, including welding (MIG, ARC, TIG, Oxy/Acetylene), plasma cutting, cold connection forming, and forging with hand held tools and the Big Blu pneumatic hammer. Maintained Open Studio hours for individual conferences with students, and actively engaged multiple levels of students within the same classroom.

Spring 2012 **Graduate Teaching Intern: Sculptural Forms**, MICA, Baltimore, MD
With Professor David Friedheim, taught required freshman Foundations course *Sculptural Forms*, and demonstrated proper and safe use of woodworking, mold making, wire construction and installation techniques. Consulted individually with students to develop ideas, actively engaged in critiques, and prepared written evaluations student work.

Graduate Teaching Intern: Modernism and After, MICA, Baltimore, MD
With Professor Jennie Hirsh, taught required sophomore survey Art History course *Modernism and After*. Held weekly office hours for individual student discussions, monitored the online course website, engaged students through group discussions in the classroom, and processed final evaluations for students.

Visiting Critic, MICA, Baltimore, MD
Provided individual critiques for *Senior Interdisciplinary Sculpture Seminar.*

Fall 2011 **Graduate Teaching Intern: Graduate Survey**, MICA, Baltimore, MD
With Professor Jennie Hirsh, taught three sections of the required graduate level Art Theory survey course *Graduate Survey*. Coordinated visiting lecturers, organized three trips to New York City, actively contributed to the dynamic discussions of contemporary concepts such as *Orientalism* and the *Altermodern*, and maintained the course website for communication with graduate students.

Graduate Teaching Intern: Metal Fabrication and Foundry I & II, MICA, Baltimore, MD
With Sculpture Studio Technician Ben Lock, taught combined lower and upper level Interdisciplinary Sculpture courses *Metal Fabrication and Foundry I & II*, and demonstrated proper and safe use of Metal Shop equipment, including welding (MIG, ARC, TIG, Oxy/Acetylene), plasma cutting, cold connection forming, as well as ceramic shell mold making for aluminum and bronze casting. Actively participated in critiques and emphasized interdisciplinary materials and processes such as installation and performance in conjunction with metal fabrication.

Visiting Critic, MICA, Baltimore, MD
Provided individual critiques for *Junior Interdisciplinary Sculpture Seminar.*

Spring 2011 **Graduate Teaching Intern: Visual Culture and the Holocaust**, MICA, Baltimore, MD
With Professor Jennie Hirsh, taught graduate level Art History course *Visual Culture and the Holocaust*. Coordinated class trip to Washington, DC, held office hours for individual discussions, contributed to group discussions, and maintained the online course website, including pdfs, powerpoints, articles, and videos.

CAROLINE COVINGTON

[redacted]

RELATED EXPERIENCE

Fall 2012 **3D Studio Technician**, University of Tennessee, Knoxville, TN
Oversee the operations of the metal fabrication shop, foundry, ceramics studios, and Foundations classrooms, and provide technical support for the areas of Sculpture, Ceramics, and Foundations to solve a range of unique problems with creative solutions. Serve as a resource for students as they develop projects, explore new materials, and utilize school equipment. Repair and inventory equipment, including welders and kilns, and keep all tools in safe and working order. Supervise and schedule undergraduate shop monitors and graduate teaching assistants for each department. Responsible for studio and staff compliance with EPA and OSHA regulations and updating the Health and Safety program and Metal Shop Manual. Maintain the budget for each department and track expenditures throughout the semester. Work with the *Metal Fabrication/Advanced Metal Fabrication* and *Mold Making and Casting* courses and assist with demonstrations.

Fall 2011 **Graduate Program Assistant**, Rinehart School of Sculpture, MICA, Baltimore, MD
Worked closely with Director Maren Hassinger and assisted in the daily operations of the Rinehart School of Sculpture program. Distributed vital scheduling information, maintained the program's budget and master calendar, and acted as the liaison between the Graduate Studies office and the program. Coordinated the transportation, housing, and payment for all visiting artists and critics. Oriented first year graduate students to the campus and demonstrated safety policies and procedures in the studio.

2010-2011 **Graduate Assistant,** Office of Residence Life, MICA, Baltimore, MD
Developed and maintained a safe and inclusive community, while supporting the academic and personal needs of over 750 on-campus residents through creative programming, in-office administrative time, and rotating on-duty responsibilities. Assisted with student behavior management, provided support in emergencies, and implemented crisis intervention. Participated in the opening and closing of residence halls, conducted student staff training, and worked closely with staff members throughout the campus to provide significant out-of-classroom learning experiences for all MICA students.

2010 **Coordinator, Customer Service Communications**, Drexel University, Philadelphia, PA
Served as principal contact with prospective students, family members, and school officials via phone and email. Counseled a diverse spectrum of incoming students and their families, many from international backgrounds, in university selection, academic decisions, and overall student development through empathetic customer service. Arranged Campus Visits for undergraduate, transfer, and graduate student populations.

AWARDS/ GRANTS

2012 **Toby Devan Award, Runner-Up**, MICA, Baltimore, MD

2011 **Graduate Student Leader of the Year**, MICA, Baltimore, MD

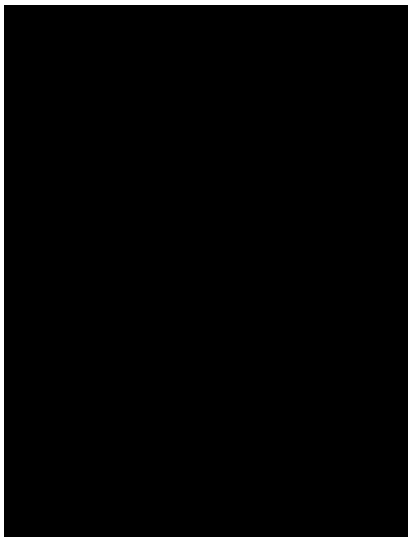
Educational Program of the Year Award, MICA, Baltimore, MD

Graduate Research Grant, MICA, Baltimore, MD

2010-2012 **Mildred Caplan Perl '39 Scholarship**, MICA, Baltimore, MD

2007 **Summa Cum Laude**, Bachelor of Fine Arts, University of Georgia, Athens, GA
Summa Cum Laude, Bachelor of Arts, University of Georgia, Athens, GA

JOSHUA DREWS!



Education

Winthrop University — BFA General Studio (Drawing and Printmaking), 2001
Advanced Placement Studio Art Certification, 2007
National Board Certified, Visual Art, 2011

Experience

- **Art Teacher, Spring Valley High School** Columbia, SC - 2001-Current
- **Media Arts & Technology Coordinator, SC Department of Education** Columbia, SC 2008-Current
- **CLIA II - Arts Leaders Institute, Facilitator, SC Department of Education -** 2015-c
- **SCALSA Facilitator, SC Department of Education** Spartanburg, SC — 2006, 2007
- **Visual Arts Instructor, Tri-District Arts Consortium**, Columbia, SC - 2003-2005

Activities

- National Art Education Association Secondary Director (2017-2019)
- National Art Education Association Secondary Level Director-Elect (2015-2017)
- National Art Education Association, Secondary Level Southeastern Representative (2013-2015)
- National Art Education Association Leadership Taskforce (southeastern and secondar representative) 2014
- South Carolina Art Education Association, Past-President (2014-2016)
- South Carolina Art Education Association, President (2012-2014)
- South Carolina Art Education Association, President-Elect (2009-2011)
- Nickelodeon Theatre, Media Education Board Member (2010-Current)
- National Art Honor Society Sponsor, SV Arts Academy Coordinator (2001-current)
- Fine Arts Grants Coordinator (Arts in Basic Curriculum and SC Distinguished Arts Prc 2006-Current
- SCAEA Secondary Coordinator (2008-2009)
- SCAEA Youth Art Month Coordinator (2006-2008)
- Spring Valley Visual & Performing Arts Instructional Leader (2008-2014, 2019-current)

Honors & Awards

- NAEA National Secondary Art Educator of the Year, 2020
- SCAEA Deb Smith Hoffman Mentor Award, 2020
- Columbia Museum of Art Contemporary Artist of the Year, 2010
- South Carolina Art Educator of the Year, 2009

JOSHUA DREWS!

- Spring Valley High School Teacher of the Year 2009-2010
- Undefined Magazine's Emerging Artist of the Year, 2008
- SC Arts Education Association Secondary Art Educator of the Year, 2008
- SC Arts Education Association NAHS Sponsor of the Year, 2007
- SC Arts Education Association Rising Star Art Teacher, 2003

Exhibitions

- Wear Your Wounds **(solo exhibit)**, Lander University Monsanto Gallery, Feb 17-March 21, 2014
- Columbia Broadside, TAPPS Fine Art Center, February 2014
- Animal Attraction, TAPPS Fine Art Center, Columbia SC, June 2013
- ArtFields, Lake City, SC, 2013 and 2016
- ArtFields: Extended, Gallery 80808, Columbia, SC, May 24-June 2, 2013
- SC Art Educators Exhibit, TAPPS Fine Art Center, February 2013
- Josh Drews!:Monotypes **(solo exhibit)**, Art+Cayce Galley, Columbia, SC, February-March, 2010
- Columbia Contemporaries Exhibit, Columbia Museum of Art, 2008-2013
- First Annual High School Art Teachers Invitational Exhibit, Columbia College, January 2007
- Richland II Arts Educators Exhibit, Gallery 80808, May 2004, May 2005

Publications

- 2017 South Carolina Media Arts Standards, Co-Author, Lead Teacher
- 2010 South Carolina Media Arts Standards, Co-Author
- 2010 SC Department of Education Media Arts (Visual Art 6-12 grade) Curriculum Support Document, Author
- 2010 SC Department of Education Media Arts (Design 9-12 grade) Curriculum Support Document, Author
- 2010 SC Department of Education Printmaking Curriculum Support Document, Author
- Columbia Metropolitan Magazine, Being Human, October 2010
  (article about me on balancing life as a teacher and artist, read it here)
- Undefined Magazine, Book 5, Josh Drews!, March-April 2010

!

Amanda E. Galbraith
Memphis, TN 38117
[redacted]

Professional Experience

Bartlett City Schools August 2014-Present
Teacher- Art Specialist

- *Inspired students with standards-based art instruction*
- *Utilized current research in art education to inform student instruction and assessment practices.*
- *Collaborated with colleagues to design an art program including the management of classroom resources and budget, sponsoring an art/photography club, and family art nights*
- *Coordinated media releases, website, student opportunities, and community partnerships*

Shelby County Schools
Teacher-Art Specialist August 2003-2014
District Lead Teacher for the Visual Arts August 2007-2014

- *Coordinated and facilitated student participation in a variety of district and community student recognition activities at the district level*
- *Developed and sustained community partnerships.*
- *Coordinated opportunities for content-area professional development throughout the school year that included content-area District Learning Days. (Planned workshops, coordinated facilitators, developed assessments, and completed other project management responsibilities.)*
- *Served on State First to the Top Fine Arts Growth Measures Committee (Responsible for developing and implementing, and once state approval was granted, selecting peer reviewers.)*
- *Served on Summer Fine Arts Academy planning and implementation committee.*

Memphis College of Art, Memphis, TN
Adjunct Instructor- Graduate Program August 2010- 2015

- *Taught Survey or Art Education, Fall 2010, Fall 2011, Summer 2012, Spring 2014, Summer 2014, Summer 2015*
- *Taught Curriculum and Assessment Spring 2012*
- *Taught Art of the pre-K-8th grade student, Fall 2014*

Tennessee Arts Academy July 2013-Present

- Director of the Arts Leadership, Administration, and Assessment

Counterpoint Innovative Solutions July 2020-Present

- Development Director

Leadership Activities

Professional Honors

- 2019 State Art Educator of the Year, Tennessee Art Education Association
- 2018 Tennessee Department of Education Subject Matter Expert for Visual/Media Arts
- 2017-18 SCORE Tennessee Educator Fellow
- 2017 Selected for BCS Textbook and Instructional Materials Review Committee
- 2017 Featured as a Teacher of Tennessee for the TDOE Classroom Chronicles
- 2017 Selected for TDOE Textbook and Instructional Materials Review Panel
- 2017 Ellendale School Leadership Team (2013-2017)
- 2017 Spike's Hike Committee (2015-2017)
- 2016 TDOE Teacher Effectiveness Advisory Council
- 2016, 2008 Writing Team member, TN Academic Standards for Visual Arts
- 2016 Writing Team member, TN Academic Standards for Media Arts
- 2016 Dogwood Arts Festival Student Art Competition juror

Publications

- 2019 *A Snapshot of Portfolio Assessment* NAEA White Paper Section IV: Analyzing Learning Outcomes, Making Interpretations, and Reporting Art Education Assessments
- 2018 District Visual Arts Curriculum, Bartlett City Schools, Bartlett, TN

Selected Presentations

National

- *I Can, You Can, We Can, Assessment for the Artroom.*March 2019 National Art Education Association Convention, Boston, MA. Co presenters: Dr. Debbie Sickler-Voight and Dr. Brynna Bobick
- *TN Portfolio Model, Teacher Leadership in the Peer Review Process* March 2016 National Art Education Association Convention, Chicago, IL. Co-presenter: Heather Casteel

State

- *See the Ecosystem*, Tennessee Art Education Association Conference, November 2019 Nashville, TN.
- *Leveraging the Revised TN Arts Standards as a Framework for Cultivating Creativity* April 2019, Tennessee Music Educators Association Conference, Nashville, TN. Co-presenter Dr. Dru Davison
- *How Might the TN Arts Standards be a Framework for Building Spaces to Cultivate Creativity?* October 2018, Tennessee Art Education Association Conference, Gatlinburg, TN. Co-presenter Dr. Dru Davison
- *Unpacking the New Tennessee Fine Arts Standards*, June 2018 TN Arts Commission Conference, Clarksville, TN. Co-presenter Brad Foust
- *Drawing Challenges to Inspire Learning* April 2018, West Tennessee Art Education Association Conference, Memphis, TN

Community/District/School

- Bartlett City Schools Student Art Show Planning Committee, 2015-present
- *Brooks Museum Docent Training Workshop, Educational Theorist Training,* September 2019, Memphis, TN
-

Grants received

- 2020-2021 Tennessee Arts Commission Student Ticket Subsidy grant
- 2019-2020 Tennessee Arts Commission Student Ticket Subsidy grants (2)
- 2018-2019 River Arts Fest Special Projects Fund grant
- 2018-2019 Tennessee Arts Commission Student Ticket Subsidy grant
- 2018-2018 Bartlett Education Foundation grant

Art Exhibitions/ Shows

- 2019 *Horn Island Retrospective* Walter Anderson Museum of Art, Ocean Springs, MS
- 2019 *Connections*, Belmont University, Nashville, Tennessee
- 2018 *Bartlett Chalk the Walk, Best in Show, Use of Media*, Bartlett, TN
- 2018 *Arts Educator's Exhibit* Memphis College of Art, Memphis, TN
- 2018 *After School Special*, ArtsMemphis, Memphis, TN
- 2017 *Connections*, Belmont University, Nashville, Tennessee
- 2016 *After School Special*, ArtsMemphis, Memphis, TN
- 2016 *Connections*, Belmont University, Nashville, Tennessee
- 2016 *BCS Teacher Show*, Singleton Community Center, Bartlett, TN

Education

Education Doctorate, Vanderbilt University, Nashville, TN, Expected completion December 2021
Education Specialist, Union University, Germantown, TN, August 2006
Masters of the Arts in Education, Union University, Germantown, TN. December 2004
Bachelor of Fine Arts, Magna Cum Laude, Memphis College of Art, Memphis TN. December 2002

[redacted]

ACADEMIC EXPERIENCE

Associate Professor, School of Journalism and Electronic Media at The University of Tennessee, 08.17 to current
Assistant Professor, School of Journalism and Electronic Media at the University of Tennessee, 08.11 to 07.17
Director, Land Grant Films at the University of Tennessee (formerly The Medal of Honor Project), 04.13 to current

EDUCATION

Ph.D. in Mass Communication, The Ohio State University, June 2011
M.A. in Telecommunication, Ball State University, May 2007
B.A. in Telecommunications (minor in history), Youngstown State University, May 2005

SELECT RESEARCH

1. Pjesivac, I., Wojdynski, B., & **Geidner, N.** (Accepted). Information Graphics as Orienting Response: An Eye-Tracking Study of The Role of Visuospatial Attention in Processing of Television News. *Electronic News*
2. Harmon, M., Fontenot, M., **Geidner, N.**, & Mazumdar, A. (2019). Affluenza revisited: Casting doubt on cultivation effects. *Journal of Broadcast and Electronic Media, 63*(2), 68-84
3. Pjesivac, I.*, **Geidner, N.**, & Cameron, J.* (2018). Social credibility online: The role of online comments in assessing news article credibility. *Newspaper Research Journal, 39*(1), 18-31
4. **Geidner, N.** & Cameron, J.* (2017). Graphic deception: Individuals' reaction to deceptive information graphics. *Newspaper Research Journal, 38*(4), 473-483
5. Pjesicav, I.,* **Geidner, N.,** & Miller, L. (2017). Using infographics in television news: Effects of TV graphics on information recall about sexually transmitted diseases. *Electronic News, 11*(3), 166-185
6. **Geidner, N.,** Radovic, I.,* Imre, I.,* Coman, I.,* & Yuran, D.* (2016). The role of interactive graphics in reducing misperceptions in the electorate. *Visual Communication Quarterly, 22*(3), 133-145
7. Sohn, D. & **Geidner, N.** (2016). Collective Dynamics of the Spiral of Silence: The Role of Ego-Network Size. *International Journal of Public Opinion Quarterly, 28*(1), 25-45
8. **Geidner, N.** & D'Arcy, D.* (2015). The effects of online news paywalls on selective exposure. *New Media and Society, 17*(4), *611*-628

SELECT DOCUMENTARIES

1. Producer/Director, *The Library That Dolly Built,* a feature-length documentary about Dolly Parton's Imagination Library
    * Distributed nationally by Abramoroma
    * Before in-person screenings were cancelled due to the global pandemic, the film was booked in more than 330 theaters nationwide. The adapted online premiere garnered more than 1 million viewers and helped raise more than $240,000 for Dolly Parton's Imagination Library
    * Selected for virtual screening by more than 60 arthouse cinemas across the county
    * Supported $32,045 in funding, including internal and external grants and private funding
2. Producer, *She Carries On,* a short documentary about women's stickball on the Cherokee reservation
    * Airing on Est Tennessee PBS on January 25, 26, 30, and 31 as part of the Appalachian Shorts series
    * Accepted for airing on Kentucky Education Television
    * Official selection: LA Skins Fest, Black Hills Film Festival and McMinnville Short Film Festival
3. Executive Producer/Supervising Producer/Segment Director, Cinematographer, Editor, *East Tennessee PBS Veteran's Coming Home* documentary series
    * Funded by a $25,000 grant ($10,000 to Land Grant) from the Corporation for Public Broadcasting
4. Executive Producer/Director, *7 Days in America*, a half-hour documentary produced in association with Bridge Refugee Services about refugee resettlement in East Tennessee
    * Aired on East Tennessee PBS on April 9, 2018
    * Official selection: Knoxville Film Fest, Franklin International Film Fest, and the Immigration Film Fest (Washington D.C.)
5. Executive Producer and Segment Producer, *Defenders of the Dream*, a half-hour magazine-format documentary program comprised of three short documentaries about Vietnam Veterans in East Tennessee
    * Aired on East Tennessee PBS on September 17, 20 and 24, 2017
    * Welcome Home Brother segment nominated for a Regional Emmy
6. Executive Producer/Director, *Reaching Recovery: Pregnancy and Addiction in East Tennessee*, a half-hour documentary produced in association with the Metro Drug Coalition (Knoxville, Tenn.)
    * Aired on WBIR, Knoxville's NBC affiliate, as part of an hour-long special on pill addiction in Tennessee, March 10, 2016; Average audience size: 34,700 households
7. Producer, *Teach a Man to Fish*, a 12-minute documentary covering a non-profit organization that teaches and takes wounded veterans fly-fishing
    * Winner audience favorite short documentary, 2015 Knoxville Film Festival

SELECT TEACHING

1. ***Documentary Video Production***, senior-level course covering all aspects of documentary production, Spring 2016 - 2021
    * Numerous films produced in this class have screened at film festivals and won various awards

2. ***Social Journalism,*** senior-level course covering all aspects of reporting with and on social media platforms, Fall 2017 - 2020
3. ***Advanced Reporting Across Media***, graduate course covering all aspects of reporting in a new media environment, Fall 2015 - 2019
   * Student work from this course won the 2016 Society of Professional Journalists Region 12 Mark of Excellence Award for In-Depth Reporting
4. ***Multimedia Storytelling,*** sophomore-level students learn the basics of storytelling and narrative development across various media, Fall 2016 and Spring 2017

SELECT AWARDS

1. Excellence in Community Engagement Award, Office of Research and Engagement, The University of Tennessee, May 2019
2. Faculty Teaching Award, College of Communication and Information, The University of Tennessee, November 2018
3. Awarded a fellowship from the Experience Learning office at the University of Tennessee to attend the Experience Learning Summer Institute, Summer 2017
4. Awarded a Faculty Development Grant from the National Association of Television Program Executives, Summer 2017

SELECT GRANTS AND CONTRACTS

1. Geidner, N. (2019, Mar). Contract funding to support the creation of a microdocumentary series about the impact of the TVA's low-income weatherization program, Three Cubed, $12,400
2. Geidner, N. (2018, July). Contract funding to support the production of *The Library That Dolly Built*, The Governor's Books from Birth Program, $10,000
3. Geidner, N. (2018, Mar). Grant supporting production of *The Library that Dolly Built*, Humanities Tennessee, $7,920
4. Geidner, N. (2018). Professional and Scholarly Development Award to support the production of *The Library That Dolly Built*, The Office of Research and Engagement, $5,000
5. East Tennessee PBS, WUOT and Land Grant Films. (2018, January). Grant supporting East Tennessee PBS Veteran's Coming Home documentary series, Corporation for Public Broadcasting, $25,000 (Land Grant Films which is directed by Geidner received $10,000)
6. Geidner, N. (2017, Jan). Grant supporting production of *Defenders of the Dream*, University of Tennessee's Experience Learning Faculty Development Grant. $1,500

Chris Grodoski, PhD

[redacted]

EDUCATION | RESEARCH | COMMUNITY BUILDER |
POLICY DEVELOPMENT | CREATIVE THINKER

An accomplished, mission-driven education leader dedicated to improving the experiences of people and growing vibrant organizations through strategy, research, creativity, and collaboration.

Research: Experienced qualitative, quantitative, and arts-based researcher. Authored research on creativity, data visualization, student engagement, human development, and policy. Command of statistical software, data visualization applications, and semantic analysis technologies.

Leadership and Advocacy: Demonstrated success in fostering generative growth in education organizations through stakeholder participation, grassroots advocacy, research, and new initiatives. Proven ability to empower, inspire, mentor, and develop talent. Unique experience as a strategic advisor, who leads with integrity and diplomacy.

Strategy: Notable outcomes in networking people and organizations statewide and nationwide for knowledge sharing and the development of new products and services. Expertise with strategic messaging and communication along with financial modeling. Diplomatic team player, who collaborates across all levels of an organization, both internally and externally.

Education: Popular nationwide professional development presenter on a range of education topics including creativity, policy, and student engagement. Accomplished educator in high-poverty and high-affluence communities, recognized for excellence in curriculum, instruction, and assessment across content areas. Developed innovations in professional development programs.

EXPERIENCE

ILLINOIS ART EDUCATION ASSOCIATION, IL **2012 – Present**

IAEA is a professional organization for individuals and groups who support art education in Illinois schools, museums, and communities. Professional development is offered through an annual conference, mini-conferences, publications and webinars.

Vice-President, Executive Committee (Current), Advocacy Chair (Past)
Oversees the statewide awards and granting program. Responsible for a four-person statewide leadership team and professional development for the 9,000+ art, design, and media educators in Illinois.

- Fiscal management of grants to and from the organization.
- Developed and managed partner and funder relationships.
- Coordinated and led stakeholder events and member initiatives
- Conducted collaborative research for development of a statewide professional development agenda, which increased membership and engagement.

- Managed a 12- person advocacy task force that produced publications, coordinated organizational partnerships, and generated legislative action.

NATIONAL ART EDUCATION ASSOCIATION, Alexandria, VA **2012 – 2017**

The world's largest professional art education association, consisting of over 20,000 active members and offering a chance to network, establish mentor relationships, and professional development events.

Research Commissioner

Responsible for setting the NAEA's research agenda and development of programs that fostered a vibrant culture of research. Accountable to both the Chair and represented members.

- Executed Commission policies, including internal and external communications strategies.
- Developed a field wide research agenda that guided national grant making initiatives.
- Founded and chaired a 30-person, international data visualization research group in projects, publications, webinars, and presentations.
- Wireframed, architected, and coordinated events for the Interactive Cafe, attracting 1500+ active members in this research driven social network.

RATECREATIVE, Chicago, IL **2014 – 2016**

A cloud-based platform that networks teachers and students for the collaborative assessment of project-based learning in Science, Technology, Engineering, Arts, and Mathematics.

Co-Founder

Responsible for concept and product development of technology for the assessment of creative student production.

- Coordinated the technical and advisory teams including thought leaders from IBM.
- Developed organizational partnerships with state-level Boards of Education.
- Transitioned the intellectual property into a program of university-sponsored, federal research grants.

ARTS ALLIANCE ILLINOIS, Chicago, IL **2014 – 2016**

Is the largest statewide arts advocacy network in the country and drives change within the creative sector, its work is critical to the statewide arts and culture landscape.

Art Education and Policy Consultant

Responsible for research and articulation of a standards adoption strategy within the state's plan to meet Every Student Succeeds Act requirement.

- Authored a multi-step engagement strategy from standards adoption to a mandated state policy, resulting in a weighted measure for arts education in Illinois schools.
- Presented and coordinated with legislative leaders and philanthropic foundations.

PEOPLE MADE VISIBLE, West Chicago, IL **2013 – 2017**

Is a non-for-profit organization with a mission to facilitate community while fulfilling the artistic, social, educational and cultural needs of the community through an innovative physical and web presence.

Board Member

Responsible for the development and execution of a governance plan. Accountable to other board members for the development and delivery of projects.

- Secured $2.6 M in TIF dollars for building rehabilitation, multi-year foundation funding and partnership with the National Museum of Mexican Art.
- Led an artist residency advisory panel with municipal, community, and philanthropic representatives.

PATHWAYS FOR ACHIEVEMENT, Wheaton, IL **2007 – Present**

Is a non-for-profit organization with a mission to serve at-risk youth through martial arts instruction, tutoring, mentoring, and community service opportunities.

Executive Director (Past), Board Member (Current)

Responsible for the development of governance plan and program management. Accountable to the board of directors for successful programming and fundraising.

- Developed and maintained organizational partnerships throughout Chicagoland.
- Maintained donor relations and met fundraising goals following the 2008 recession.
- Managed the instruction and outreach team while coordinating events and programs for clients.

EDUCATION EXPERIENCE

COMMUNITY UNIT SCHOOL DISTRICT 200, Wheaton, IL **2008 – Present**

Visual Art and Design Educator

Responsible for the daily instruction of 200 students and leadership within professional learning teams. Accountable for creating and delivering personalized content through differentiated instruction.

- Founded the Arts Walk in partnership with local businesses, serving hundreds of students annually.
- Guided the development of school wide research on student engagement and personalized learning.
- Led the expansion and updating of art and design programming district wide.

CHICAGO PUBLIC SCHOOLS, Chicago, IL **2003 – 2008**

Classroom Educator**, Laura S. Ward Elementary** (2005-2008)

Responsible for the curriculum and instruction for all 7th and 8th grade learning areas; assisting students in exceeding math and reading goals, resulting in student acceptance to top magnet high schools.

Art Educator**, Laura S. Ward Elementary and Nia Elementary** (2002-2005)

Responsible for curriculum development and instruction of students for these new programs; developing an integrated arts curriculum for grades 4-8 that improved attendance and test scores; creating and delivering a social-emotional learning program that decreased disciplinary incidents.

JEWISH CHILDREN'S BUREAU, Chicago, IL **2000 – 2003**

Supervisor and Care Worker

Reporting to the clinical supervisor and responsible for six therapeutic group homes for wards of the state. Responsible for co-founding and managing a home for adult men with developmental delays and managing scheduling, hiring, and crisis management at homes for children, teens, and teen mothers.

Northern Illinois University, PhD, *Art Education with a focus on creativity and dual concentrations in Public Policy and Cognitive Psychology*
Northwestern University, MSEd, *Education and Social Policy*
Illinois Wesleyan University, BFA, *Art and Art History*

AWARDS

President's Award/ Illinois Art Education Association **2014**
Excellence in Education/ Illinois State Board of Education **2013**
Middle Level Art Educator of the Year Illinois Art Education Association **2012**
Middle Level Art Educator of the Year National Art Education Association **2013**

PUBLICATIONS AND PRESENTATIONS LIST AVAILABLE ON REQUEST

Nicholas Scott Kim

[redacted]

EDUCA

The University of Tennessee, Knoxville College of Education, Health, & Human Sciences Knoxville, TN
Ph.D., Theory and Practice in Teacher Education Expected Spring 2021
Concentration: Teacher Education; *Specialization*: Mathematics Education
Thesis: Recruiting Minoritized Mathematics Preservice Teachers with Retention in Mind
Major Advisor: Lynn L. Hodge, Ph.D.

The University of Tennessee, Knoxville College of Education, Health, & Human Sciences Knoxville, TN
M.S., Teacher Education May 2011
Concentration: Mathematics Education
Action Research Project: Homework: A Necessary Evil?
Major Advisor: Lynn L. Hodge, Ph.D.

The University of Tennessee, Knoxville College of Arts and Sciences Knoxville, TN
B.S., Business Administration- Accounting May 2006
Collateral: International Business
Minors: Secondary Education, Mathematics May 2010

CERTIFICATIONS/LICENSES

State of Tennessee Professional Education License, No. 000565253 Active until 8/31/2023
Praxis Certifications:

- 413 Mathematics 7-12

Certified TEAM Teacher Evaluator Active 2017 – Present

ACADEMIC/LEADERSHIP EXPERIENCE

CEEMS Project Coordinator 2020 – Present
VolsTeach for Appalachia: Strengthening the STEM Teacher Pathway from Community College to East Tennessee High-needs Schools Districts
Growing STEM Teachers to Grow the TN STEM Workforce
The University of Tennessee, Knoxville

- Coordinate all planning, logistics, and volunteer personnel for both programs, including professional development, internships, scholarships, service-learning, mentorships, etc.…
- Develop and deliver curriculum for summer internships
- Coordinate marketing and public relations for events and information.
- Manage online presence of the Hub through all social media and e-mail avenues (Wordpress, Twitter, Facebook, Instagram, and MailChimp).

Professional Learning Coordinator 2020 – Present
The East Tennessee STEM Hub
Center for Enhancing Education in Mathematics & Science
The University of Tennessee, Knoxville

- The East TN STEM Hub is a regional partnership of educational, business, scientific, and research institutions and organizations that promote and support high quality STEM education in East Tennessee.

It is a part of the Tennessee STEM Innovation Network.
- Coordinate all planning, logistics, and volunteer personnel for Hub events, including professional development, Innovative Educator Workshops, local school Family STEM Nights, etc.
- Maintain communications with school district personnel in all thirteen counties in the region as well as many community and industry partners.
- Coordinate marketing and public relations for events and information.

Graduate Teaching Associate 2018 – 2020
Department of Theory and Practice in Teacher Education
College of Education, Health, and Human Sciences
The University of Tennessee, Knoxville
- Assist with curriculum development, technology and organization, and substitution of the undergraduate math and science education minor program, VolsTeach.
- Primary instructor of introductory inquiry-based learning and teaching courses and undergraduate and graduate secondary mathematics teaching methods courses.
- Supervision and provision of field support to students/pre-service teachers in their field placements in all levels of the VolsTeach program.
- Supervision and provision of field support for pre-service teachers in their field placements for students seeking a master's degree in Teacher Education focusing on Mathematics Education
- Supervision and provision of field support to Job Embedded Science teachers seeking teacher licensure while also starting their first few years of teaching.
- Teaching assistant in Research Methods for undergraduate students interested in teaching in mathematics or sciences in secondary education.
- VolsTeach for Appalachia recruiting coordinator
- East Tennessee STEM Hub facilitator, presenter, task creator, and organizer

High School Mathematics Teacher 2010 – 2017
West High School, Knoxville, TN
- Courses Taught: Algebra I, Algebra II, Geometry, Geombra, Pre-Calculus, Honors Pre-Calculus, Calculus, AP Calculus AB, AP Statistics, IB Math Studies Yr1 and 2, Advanced Algebra and Trigonometry, and Skills for Success
- Services: Mentor Teacher, Boys Soccer JV Coach, Girls Soccer Head Coach, Data Team, PLC Leader

RECENT AWARDS

AMTE NTLI Award 2020- 2020
When Robots Invade the Neighborhood: Learning to Teach PK-5 Mathematics Leveraging Both Technology and Community Knowledge

RECENT PUBLICATIONS

Harper, F., Stumbo, Z., & **Kim, N.** (2020). When robots invade the neighborhood: Learning to teach PK-5 mathematics leveraging both technology and community knowledge. In NNN (Eds.) *Proceedings of the 31st annual meeting of the Society for Informational Technology and Teacher Education,* (Vol. 1, pp. XX-YY). Online

Kim, N., & Harper, F. (2019). Structured participation promotes access and accountability during cooperative learning in mathematics education. In NNN (Eds.) *Proceedings of the 41st annual meeting of the International Group for the Psychology of Mathematics Education,* (Vol. 1, pp. XX-YY). St. Louis, MO: University of Missouri at Columbia & University of Missouri at St. Louis.

SH [redacted]

EDUCATION & CERTIFICATIONS

Ph.D. in Teacher Education/Mathematics Education, The University of Tennessee, Knoxville (UTK), May 2020
- Cognates in Mathematics & World Language Education
- Graduate Certificate in Evaluation, Statistics, and Measurement
- Certified Tennessee Educator Acceleration Model (TEAM) Teacher Evaluator, Active 2017 – Present

Master of Mathematics, The University of Tennessee, Knoxville, Expected August 2021

Ed.S. in Curriculum and Instruction, Tennessee Technological University, May 2014

M.S. in Teacher Education, The University of Tennessee, Knoxville, May 2011
- State of Tennessee Professional Education License, No. 000565744, Active until 8/31/2025
    - *Praxis Certifications*: 411 French 7-12, 413 Mathematics 7-12, & 426 Psychology 9-12

B.S. in Mathematics, B.A. in Honors French, The University of Tennessee, Knoxville, May 2010

ACADEMIC APPOINTMENTS

2020 – Present	*Assistant Professor of Mathematics*, Seattle Pacific University
2017 – 2020	*Graduate Teaching Associate*, The University of Tennessee, Knoxville
2012 – 2020	*High School Mathematics and French Teacher*, Christian Academy of Knoxville

RESEARCH AND/OR SCHOLARLY PUBLICATIONS

King, S., Hodge, L, & Bertling, J. (in submission). Data visualizations for meaningful statistics learning n elementary mathematics. *Investigations in Mathematics Learning.*

Hodge, L., Bertling, J., & **King, S**. (accepted). Supporting statistical literacies in the context of a data visualization project with elementary students. In. P. Short, H. Henson, and J. McConnell (Eds.), *Cultivating a Scientific Mindset in the Age of Inference*.

King, S. (in press). Developing student identity through community: Practices in remote interpersonal communication. *The French Review*.

Bertling, J. Hodge, L., & **King, S.** (2021). The case for data visualizations in the K-12 art curriculum. *Art Education*.

Campbell, T., **King, S.,** & Zelkowski, J. (2020). Comparing middle grade students' oral and written arguments. *Research in Mathematics Education.*

Campbell, T., Boyle, J., & **King, S.** (2019). Proof and argumentation in K-12 mathematics classrooms: A review of conceptions, content, and support. *International Journal of Mathematical Education in Science and Technology*, 1-21. doi: 10.1080/0020739X.2019.1626503

King, S. (2019). Formative assessment via flipped interactive screencasts. In Wachira, P., & Keengwe, S. (Eds.), *Handbook of Research on Online Pedagogical Models for Mathematics Teacher Education*. Hershey, PA: IGI Global.

Hodge, L., **King, S.**, & Bertling, J. (2019). Mathematizing, visualizing, and power (MVP): Students creating statistical literacies through popular representations. In M. Graven, H. Venkat, A. Essien, & P. Vale (Eds.). *Proceedings of the 43rd Conference of the International Group for the Psychology of Mathematics Education*, Vol. 1, p. 4-141. Pretoria, South Africa: PME.

AWARDS & HONORS

2017 – 2020	Tennessee Fellowship for Graduate Excellence ($30,000), *The University of Tennessee Graduate School*
2019	Extraordinary Professional Promise Citation, *The University of Tennessee Chancellor's Citation Awards*
2019	Graduate Student Research Award ($500), *Department of Theory and Practice in Teacher Education*
2019	Dean's Professional Development Award ($1000)**,** *College of Education, Health, and Human Science Graduate Student Research Colloquium*
2011 – 2012	Fulbright Grant: English Teaching Assistantship (~$8,000), *Fulbright International Education Exchange Program*

FUNDED RESEARCH

2020	Phi Kappa Phi Dissertation Fellowship ($10,000), *The Honor Society of Phi Kappa Phi*
2020	Global Catalyst Grant ($1500), *The University of Tennessee Center for Global Engagement*
2011 – 2012	Fulbright Grant: English Teaching Assistantship (~$8000), *Fulbright International Education Exchange Program*

PRESENTATIONS

King, S., Hodge, L., & Hu, Q**.** (2021, July). *The role of interpersonal discourse in small-group collaboration in developing mathematical arguments and student identity*. The 14th International Congress on Mathematics Education (ICME-14), Shanghai, China: ICME-14.

Hodge., L, **King, S.**, & Hu, Q**.** (2021, July). *Creating access to engaged views of mathematics and teaching through informal learning spaces.* The 14th International Congress on Mathematics Education (ICME-14), Shanghai, China: ICME-14.

King, S. (2021, April). *From math person to math people: Collaboration and argumentation on the transformation of math identity.* Poster Presentation at the American Educational Research Association Annual Conference, Orlando, FL.

Hodge, L., **King, S.**, & Bertling, J. (2019, July). *Mathematizing, visualizing, and power (MVP): Students creating statistical literacies through popular representations*. Poster Presentation at the 43rd Conference of the International Group for the Psychology of Mathematics Education, Pretoria, South Africa.

Rosenberg, J. M., Hodge, L., Bertling, J. G., & **King, S**. (April, 2020). Art as a context for data science: Exploring fourth-grade students' data visualization practices. In J. M. Rosenberg & B. D. Chen (Chairs), *Exploring data science across the curriculum and across grade levels*. Symposium to be conducted at the American Educational Research Association Annual Meeting, San Francisco, CA.

McKee, Katherine R

OBJECTIVE

Innovative science teacher skilled at promoting active learning through multiple learning approaches and hands-on activities. Is engaging and enthusiastic in the classroom and builds meaningful relationships with students.

SKILLS & ABILITIES

- SWPBS Committee Member
- Led school through TN STEM Designation Process
- School Improvement Team Committee Member
- Girl's STEM Club sponsor
- Guy's STEM Club sponsor
- Lead STEM Committee Member
- Lead teacher Standards Based Grading implementation
- Professional Development facilitator
- Roane County Collaborative Conference team
- BETA Club Sponsor
- Tennessee Education Association- Building representative

EXPERIENCE

MIDWAY MIDDLE SCHOOL, TEN MILE TENNESSEE

July 2012-present

- Instructed more than 120 middle school students through discussions, direct instruction, group activities and demonstrations
- Planned and supervised class projects, and visits by guest speakers including engineers, nuclear scientists, and research scientists from the Oak Ridge National Lab.
- Planned and coordinated STEM Day's school wide, designed and implemented PBL's grade level wide
- Provided one-on-one attention to students, while maintaining overall focus on the entire group.
- Consistently presented and led science professional development in our county.
- Acted as a mentor to new middle grades science teachers in the county.

TABLE ROCK MIDDLE SCHOOL, MORGANTON NORTH CAROLINA

August 2004-June 2012

- Integrated technology into the classroom as an instructional tool, such as document camera and smart board.
- Administered and graded tests and assignments to evaluate student progress.
- Established positive rapport with all students and parents through home calls, emails, and parent conferences.
- Prepared daily lesson plans for activities and labs following the North Carolina State Standards.
- Collaborated with peers to plan collaborative science lessons through the grade levels.

EDUCATION

APPALACHIAN STATE UNIVERSITY, BOONE NC

Masters of Art- Middle Grades Science

2008

YORK COLLEGE OF PENNSYLVANIA, YORK PA

Bachelor of Science- Secondary Education History

2014

ACCOMPLISHMENTS

- Students in 7th and 8th grade consistently have the highest test scores in the county in both growth and achievement.
- Guided, developed, and wrote TSIN/TN STEM School of designation application and process
- Have written and received 9 grants to buy supplies, lab equipment, manipulatives, and resources for the science department and STEM programs at Midway Middle School.
- TSIN STEM curriculum developer 2020
- Midway Middle School Teacher of the year 2019
- Roane County Schools Middle Grades Teacher of the Year 2019
- TSIN/TVA PBL developer 2018
- TSIN Rural Collaborative Member 2017
- Nominated for Tennessee Science Teacher of the Year 2019
- Nominated for Tennessee Science Teacher of the Year 2016
- Midway Middle School Teacher of the year 2016
- Table Rock Middle School Teacher of the year 2011

ASHLEY MCNEALY

[redacted]

SUMMARY & OBJECTIVE:

Professional educator with STEM expertise

Education:

2009-10 M.ED Education: Reading Specialist, University of the Cumberlands

2006-08 B.S. Early Childhood Education, East Tennessee State University

2004-06 A.S Early Childhood Education, Walter State Community College

License:

Professional TN Teaching Certificate with endorsements: Early Childhood 497 grade Pre-K-4TH and 440 Middle Grades 4-8, all subjects.

EXPERIENCE:

2016-present 2nd grade teacher at Elk Valley Stem School

2014-2016 Fourth Grade Teacher at White Oak Elementary School

2010-2014 Kindergarten Teacher at White Oak Elementary School

2009-2010 Certified Pre-school teacher at Jellico Elementary School

2008-2009 Third Grade Teacher at Jellico Elementary School

Highlights:

STEM leadership team for school designation 2019-20, Rural STEM collaboration, Virtual camp Science Teacher, American Federation of Teachers, Tutor with 21st Century Educators, Title I knowledge (School title I decision making team 2013-2016), MS Office proficient, School awards coordinator 2014-2016. Community volunteer experience at Clearfork Community Institute, Music teacher (Volunteer) at CCI, Board Member at WDVX (Knoxville Radio Station), Grant writer and recipient for 2014-2016 East TN Arts in the Classroom Grant for White Oak School, 2015 grant recipient for essay writing on Donors Choose.

Jonathan Reagan

[redacted]

ADDRESS
149 Rattlesnake Hollow Rd.
Gatlinburg, TN 37738

EDUCATION

University of Tennessee, Knoxville TN
Master of Science in Secondary Education: Secondary Mathematics Education, May 2016
Honors: Dean's List, Summa Cum Laude
Licensure: Secondary Mathematics 7-12

University of Tennessee, Knoxville TN
Bachelor of Science in Mathematics: Major: Mathematics; Secondary Education, May 2015
Honors: Dean's List, Magna Cum Laude

Walters State Community College, Morristown, TN
Associate of Science in Mathematics, May 2013
Major: Mathematics
Honors: Dean's List, Magna Cum Laude

Teaching Experience

Pigeon Forge High School, Pigeon Forge, TN
Algebra I Mathematics Teacher, Fall 2016 through Spring 2018

- Designed lesson plans based on Sevier County curriculum
- Administered TN Ready tests
- Incorporated test-taking strategies into lessons
- Worked on a county-wide math committee to create a pacing guide for Algebra I throughout Sevier County

Gatlinburg-Pittman High School, Gatlinburg, TN
Algebra II Mathematics Teacher, Fall 2018-current

- Created a county-wide pre-assessment for Algebra II
- Recognized as Teacher of the Year in 2019-2020 for Gatlinburg-Pittman High School
- Utilized Google Classroom and Google Meets to facilitate virtual and in-person learning
- Mu Alpha Theta Sponsor for the Gatlinburg-Pittman Chapter

Field Experience

South Doyle Middle School, Knoxville TN
Practicum Intern, 6th Grade Inclusion Mathematics Class, Spring 2015

- Data collection on student behavior

- One-to-one and small group tutoring
- Whole class instruction

Karns Middle School, Knoxville, TN
Internship, 7th Grade Inclusion and Honors Mathematics Classes Fall 2015 through Spring 2016

- Designing lesson plans based on Knox County curriculum
- Designing unit plans based on Knox County curriculum
- Creating assessments
- Administering TN Ready tests
- Whole class instruction
- Small group instruction
- Individual instruction
- Grouping students
- Analyzing student data
- Parent conferences
- Participating in IEP meetings
- Differentiating course content for diverse learners

Volunteer Experience
Catons Chapel Elementary School, Sevierville, TN
Parent Volunteer, students in K-6 grade general education classroom

- Assisted general education teacher in organizing materials
- Supervised small groups of students during field trip experiences

Junior League Boys Basketball Coach, Fall 2012-Spring 2018

- Scheduling weekly practice for the team
- Demonstrating practice drills
- Coaching the team to a district championship in 6th grade

Additional Teaching Experience
Smokey Mountain Isshin Ryu Karate, Pigeon Forge, TN
Assistant Instructor, September 2006-August 2011

- Instructed children ages 5-17
- Instructed adults ages 18+
- Whole class, small group, and individual instruction
- Instructed classes in traditional Okinawan self-defense
- Instructed classes in traditional Okinawan kobudo

[redacted]

EDUCATI

2016	MS, Education, Art Education concentration, University of Tennessee, Knoxville
2015	BFA, Studio Art, Ceramics/Art Education, University of Tennessee, Knoxville, Summa Cum Laude
2001	AAS, Culinary Arts, Johnson & Wales University, Providence, RI

WORK EXPERIENCE

2016-present	Art Teacher, Coulter Grove Intermediate School, Maryville, TN
2015-present	Self-employed potter, Providence Road Pottery, Knoxville, TN

PROFESSIONAL ACTIVITIES

2019	Penland Workshop Participant, Tricks of the Trade with Deb Schwarzkopf, Penland, NC
2019	Workshop Participant, Teapots with Stephanie Wilhelm, Arrowmont, Gatlinburg, TN
2018	Presenter, NAEA National Conference, Seattle, WA
2018	Workshop Participant, Mold making with M. Paige Ward, Arrowmont, Gatlinburg, TN
2017-2019	Donor, Artitude, East Tennessee Cancer Support Center, Knoxville, TN
2017	Juror, Rhythm & Blooms Guitar Design Contest, Dogwood Arts, Knoxville, TN
2017, 2019	Volunteer, Tennessee Valley Fair Student Art Competition, Knoxville, TN
2016, 2017	Volunteer, Synergy Student Show, Dogwood Arts, Knoxville, TN

SELECTED EXHIBITIONS/SALES

2020	Bailey Grant Exhibition, Emporium Center, Knoxville, TN
2019	Main Street Festival, Juried, Franklin, TN
2018, 2019	Dogwood Arts Synergy Exhibition, Juried, Clayton Center, Maryville, TN
2018	Foothills Fall Craft Festival, Maryville, TN
2018	Devour, Emporium Center for the Arts, solo exhibition, Knoxville, TN
2018	Tennessee Craft Spring Show, Nashville, TN

COLLECTIONS

2015	Permanent collections, University of Tennessee Student Health Center, Knoxville, TN
2015	Last Days of Autumn Brewing, Knoxville, TN

HONORS/AWARDS

2020	Ann & Steve Bailey Opportunity Grant Recipient
2019	Penland Scholarship
2018	Ann & Steve Bailey Opportunity Grant Recipient
2017	TAEA First Year Art Educator of the Year
2016	Honorable Mention, *Dogwood Arts Synergy Exhibition,* Juried, Clayton Center, Maryville, TN
2015	2nd Place Artist Award, *Odds & Ends*, juried, Cookie Aytes Elliot Gallery, Knoxville

RICHARD SIEGESMUND

[redacted]

EDUCATION

Ph.D. Art Education, Stanford University, 2000
Under the direction of Elliot Eisner
MA Art Education, Stanford University, 1995
BA Studio Art, Trinity College, Hartford, 1973

PROFESSIONAL EXPERIENCE

A. Academic positions

2021-present Professor Emeritus, Art+Design Education, School of Art and Design, Northern Illinois University, DeKalb, IL

B. Fellowships and honors (selected)

2020 Distinguished Member, Illinois Art Education Association

2020 Tom Barone Award for Distinguished Contributions to Arts-Based Educational Research, American Educational Research Association

2019 Distinguished Service to the Field of Art Education Award, Illinois Art Education Association

2017 Fulbright Specialist Award, Centre for Sociological Research, Katholieke Universiteit Leuven, Leuven, Belgium

2014 Distinguished Fellow of the National Art Education Association

2010 Core Fulbright U.S. Scholar Award, Faculty of Education, National College of Art and Design, Dublin, Ireland

2010 Distinguished Service within the Profession Award, Georgia Art Education Association

2003 Manuel Barkan Memorial Award for significance of published research, National Art Education Association

1999 Doctoral Dissertation Fellow, Getty Education Institute for the Arts, Los Angeles, CA

1981 Fellowship in Arts Management, Visual Arts Program, National Endowment for the Arts, Washington, DC

RESEARCH

A. Publications

1. Books co-edited:

2018 *Arts-Based Research in Education: Foundations for Practice*, 2nd edition, with M. Cahnmann-Taylor (Routledge: New York, NY)

2008 *Arts-Based Research in Education: Foundations for Practice*, with M. Cahnmann-Taylor (Routledge: New York, NY).

2. Journal articles (selected):

2020 Arts-Based Research in the Social and Health Sciences: Pushing for Change with an Interdisciplinary Global Arts-Based Research Initiative" with N. Gerber, E. Biffi, J. Biondo, M. Gemignani, and K. Hannes, *Forum: Qualitative Sozialforschung /Forum: Qualitative Social Research, 21*(2), Art. 30, 1-15.

2017 "Arts-based methods in socially engaged research practice: A classification framework," with Q. Wang, S. Coemans, K. Hannes, *Art/Research International: A Transdisciplinary Journal 2*(2) 5-39.

2014 "Reliability and Validity with an N of 1 in Arts-Based Educational Research," *International Journal of Education & the Arts 15(SI* 2.5, 1-13). /

2014 "Strategic Visual Thinking: Visualization as Research and Quantitative Reasoning," with R. Williams, *Journal of Aesthetic Education* (198) (Taiwan), 12-17.

3. Bulletins, reports, webinars (selected:

2019 "Data as Objects of Exhibition," NIU Art Museum, *Data: BIG/driven/visualized...*

2018 Presenter, "Teaching Infographics: From Qualities to Quantities" with Danielle Sheppard and Joe Zimka, in *Data Visualization: Creating Dialogue*, webinart, National Art Education Association, Alexandria, VA

2015 "Visual Quantitative Reasoning: Introducing Research with Technology," with R. Williams, FutureForward, 4 (1), 54-60. http://integrativeteaching.org/futureforward/.

B. Conference Presentations

2019 "Teaching Infographics: Re-thinking the Selfie as Data and Metaphor" with Danielle Sheppard, Northern Illinois University, Steaming it Up Conference, DeKalb, IL

2018 Participant, "Data Visualization Working Group Deep Dive Session, "National Art Education Association annual conference, Seattle, WA.

TEACHING

A. Northern Illinois University

ARTE 109 Strategic Visual Thinking (approved 2013).
Course content covers data collection, interpretation, and presentation techniques using visual design tools to facilitate and influence decision-making in diverse aspects of daily life. Undergraduate General Curriculum course that meets the Interdisciplinary distribution requirement.

B. University of Georgia

ARTS 2100: Strategic Visual Thinking (approved 2010). This course was the only Fine Arts course approved by the state board of regents as meeting the quantitative reasoning requirement in the undergraduate general curriculum.

Rebecca Danielle Williams

Curriculum Vitae

Assistant Professor of Art Education
Department of Art & Design
Murray State University
[redacted]

Education

PhD (2015) *Art Education*. University of Georgia. Athens, Georgia
Dissertation: Seeking Wide-Awakeness: An Exploration of Engagement in a High School Visual Arts Course
Advisor: Dr. Christopher Schulte

MAEd (2010) *Art Education*. University of Georgia. Athens, Georgia
Thesis: Realization and Creation of the CREATE! Torrance Summer Art Intensive
Advisor: Dr. Richard Siegesmund

BA (2008) *Art Education*. University of Louisiana at Lafayette. Lafayette, Louisiana
Advisor: Dr. Lynn Sanders-Bustle

Certifications

- Interdisciplinary Qualitative Studies Certificate, University of Georgia — 2015 - present
- Art Education K-12, State of Louisiana — 2008 - 2011

Teaching Experience

Murray State University; Murray, KY

- Assistant Professor, ART 341: Inclusive Art Education for Diverse Learners — Spring 2016, 2017, 2018, 2019 & 2020
- Assistant Professor, ART 342: Effective Pedagogy of Art Education — Fall 2015, 2016, 2017, 2018, 2019, & 2020
- Assistant Professor, ART 343: Art Materials and Techniques for the Classroom — Fall 2015 - Fall 2020
- Assistant Professor, ART 488: Coop Ed/Internship — Spring 2018
- Assistant Professor, ART 492: Special Problems in Art Education — Spring 2020
- Assistant Professor, ART 692: Special Problems in Art Education — Fall 2016, Spring 2019, & Fall 2019
- Adjunct Instructor, ART 343: Art Materials and Techniques for the Classroom Teacher — July 2015

University of Georgia; Athens, GA

- Instructor of Record, ARED 5460: Student Teaching in Art Education — Fall 2014 & Spring 2015
- Instructor of Record, ARED 5470: Issues and Practices in Teaching Art — Fall 2014 & Spring 2015
- Instructor of Record, ARED 3050: Art and the Child — Spring 2013, Fall 2013, & Spring 2014
- Instructor of Record, ARED 3360/7360: Secondary Curriculum in Art Education — Spring 2012
- Instructor of Record, ARTS 2100: Strategic Visual Thinking — Fall 2011 & Fall 2012
- Teaching Assistant, Freshman College, ARTS 2000: Art Appreciation — July 2010

Research Experience

- Visual Journaling in Secondary Art Classrooms — February 2021 - present

- Art Teacher Retention — August 2019 - present
- Traveling Sketchbook Qualitative Practitioner Inquiry Study — October 2017 - December 2017
- Dissertation Narrative Inquiry Case Study — September 2014 - August 2015
- Dissertation Pilot Case Study — June 2013

Teaching and Research Interests

- Art Education
- Curriculum and Pedagogy
- Aesthetics and Critical Response
- Teacher Preparation
- Qualitative Research
- Narrative Inquiry

Publications

- Williams, R. (2020). Enacting Wide-Awakeness: Stories of Challenging Moments and Personal Change in High School Visual Arts. *Visual Arts Research*, 46(2), pp. 28-47.
- Williams, R. & Debban, E. (2020). Learning from Traveling Sketchbooks between Today's Students and Tomorrow's Teachers. *Art Education*, 73(2).
- Williams, R. (2017). Being with and being there: Our enactment of wide-awakeness. *International Journal of Education & the Arts*, 18(21). Retrieved from http://www.ijea.org/v18n21/.
- Williams, R. & Siegesmund, R. (2015). Visual Quantitative Reasoning: Introducing Research with Technology. *FutureForward*, 4 (1), 54-60. (http://integrativeteaching.org/futureforward/).
- Siegesmund, R. & Williams, R. (2014). Wang, S. (Trans.). Strategic visual thinking: Visualization as research and quantitative reasoning. *Journal of Aesthetic Education* (198), 12-17 (Taiwan).
- Sanders-Bustle, L., & Williams, R. (2013). Explorations of Place: Artists and Artworks of Southwest Louisiana. *Art Education*, 66(2), 25-32.

Presentations (Regional* - National - International***)**

- Kinsland, K. & Williams, R. (under review). *Engaging Literacy Strategies Across Artistic Processes*. KyAEA Fall Conference: Virtual.*
- Williams, R. (October 2019). *Freeing Forms*. KyAEA Fall Conference: Nicholasville, KY.*
- Williams, R. (November 2018). *Enacting Wide-Awakeness: Transformational Stories of Learning in High School Art*. University of Cincinnati Invited Lecture: Cincinnati, OH.**
- Williams, R. (October 2018). *The Book as an Art Object–Create Your Own Canvas*. KyAEA Fall Conference: Campbellsville, KY.*
- Williams, R. (October 2018). *Visual Journals as a Vital Curriculum Tool*. KyAEA Fall Conference: Campbellsville, KY.*
- Siegesmund, R., Hullender, R., & Williams, R. (March 2018). *STEAM-Based Alternative Self Portraiture: Rethinking the Selfie*. NAEA National Convention: Seattle, WA.**
- Williams, R. (October 2017). *Enacting Wide-Awakeness: Stories of Challenging Moments and Personal Change in High School Visual Arts*. Art Education Research Institute: Naperville, IL.**
- Williams, R.; Dothsuk, C.; Church, H.; Hill, C. & Kinsland, K. (October 2017). *Side by Side: Experiential Learning for Teacher Candidates and Students with Special Needs*. KyAEA Fall Conference: Crestview Hills, KY.*
- Williams, R. (October 2017). *Understanding and Accessing Creativity*. KyAEA Fall Conference: Crestview Hills, KY.*

- Williams, R. (June 2017). *Looking at Art Across the Curriculum*. College and Career Readiness Summit: Murray, KY.*
- Williams, R. (June 2017). *Harnessing the Potential of Art Integration*. College and Career Readiness Summit: Murray, KY.*
- Debban, E. & Williams, R. (March 2017). *Sketchbooks at the Heart of the Art Classroom*. NAEA National Convention: New York, NY.**
- Williams, R. (September 2016). *Stick It to It: A Collaborative Mid-process Critique*. KyAEA Fall Conference: Richmond, KY.*
- Williams, R. (May 2016). *Establishing the Chaotic Synergy: An Exploration of Wide-Awakeness in a High School Visual Arts Course*. International Congress of Qualitative Inquiry: Champaign-Urbana, IL.***
- Williams, R. (March 2016). *Wide-Awakeness: How Art Education Leads to It and What It Might Lead to in Life*. NAEA National Convention: Chicago, IL.**
- Williams, R. (October 2015). *Establishing the Chaotic Synergy of a Creative Community*. KyAEA Fall Conference: Lexington, KY.*
- Williams, R. (May 2015). *A Wide-Awake Research Methodology and Pedagogy*. International Congress of Qualitative Inquiry: Champaign-Urbana, IL.***
- Williams, R. (March 2015). *Being With and Being There: Designing Wide-Awake Learning Experiences*. NAEA National Convention: New Orleans, LA.**
- Williams, R. (October 2014). *Opening the Possibilities of Technology in the Classroom*. GAEA Fall Conference: Macon, GA.*
- Williams, R. (March 2014). *Open Source Software: Sparking Innovative Teaching and Learning for All*. NAEA National Convention: San Diego, CA.**
- Siegesmund, R. & Williams, R. (March 2014). *Research Forum: Data Visualization*. NAEA National Convention: San Diego, CA.**

Internal Revenue Service

Department of the Treasury

APR 01 1998

District Director

Delaware-Maryland District

[redacted]

UNIVERSITY OF TENNESSEE
201 ANDY HOLT TOWER
KNOXVILLE, TN 37796

Dear Sir/Madam:

This is in response to your inquiry rec'd MARCH 27, 1998, requesting a copy of a determination letter recognizing the above organization as being tax-exempt from Federal Income Tax.

Because your organization is a governmental unit as described in section 170(c)(1) of the Internal Revenue Code, in accordance with section 115 of the Code, you are not subject to Federal Income Tax.

Contributions made to you for exclusively public purposes are deductible by the donors in computing their taxable income in the manner and to the extent provided by section 170 of the Internal Revenue Code.

If you have any questions, please contact the person whose name and telephone number are shown in the heading of this letter.

We hope this information is helpful to you.

Sincerely,

[redacted]

Paul M. Harrington
District Director

[redacted]

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Bob Thomas, Superintendent

February 15, 2021

US Department of Elementary and Secondary Education
Office of Well Rounded Education
Washington, DC 20202-6200

To Whom It May Concern:

I am writing to express my support for the Data Visualization Project. I believe this STEAM project will be important in promoting data literacy with our upper elementary and middle school students and expanding and deepening their arts experiences. I can confirm our school district's willingness to partner with the University of Tennessee.

As part of our partnership agreement, we pledge 1) to identify a media arts and STEM classroom where the data visualization lesson(s) might be piloted in the first year, 2) to publicize and recruit art and STEM teacher participants for the professional development workshops the following two years, and 3) to share the final data visualization curricular and professional development materials as appropriate.

Thank you for your consideration of the Data Visualization Project's application to the Assistance in Arts Education Program. Please do not hesitate to contact my office at [redacted] should you have any questions.

Sincerely,

[redacted]

Bob Thomas
Superintendent

[redacted]

United
Commitment to
Pupil
Success

Dr. James E. Carter
[redacted]

Union County Board of Education
P.O. Box 10
Maynardville, Tennessee 37807
www.ucps.org

February 16, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
400 Maryland Avenue, SW
Room 3E308
Washington, DC 20202

Dear Bonnie Carter:

I am writing this letter to demonstrate Union County Public Schools' support for the University of Tennessee's proposal to the U.S. Department of Education's Assistance in Arts Education Program for *The Data Visualization Project.*

Union County Public Schools has been partnering with the University of Tennessee and the East Tennessee STEM Hub to support STEM education in the district for the past two years. We are excited to see how The Data Visualization Project, a STEAM project with a strong arts focus, will expand and enrich these efforts. Also importantly, we are looking forward to seeing how teacher participation in this program might increase students' exposure to the arts and deepen their arts education experiences.

To support this partnership, we commit to sharing information about the project and encouraging our teachers to attend The Data Visualization Project's professional development program.

We look forward to working with the University of Tennessee on this innovative project.

[redacted]

Jimmy Carter
Director of Schools
[redacted]

February 26, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
Washington, DC 20202

To the Assistance in Arts Education Program:

I am writing this letter to demonstrate the Tennessee STEM Innovation Network (TSIN) support of the Data Visualization Project. We see the Data Visualization Project as an innovative program, intuitively blending art and STEM as STEAM through data visualization, with important implications for students, teachers, schools, and communities in East Tennessee.

Ever since TSIN originated as a partnership between Battelle and the Tennessee Department of Education, the mission of the network has been to promote and expand the teaching and learning of Science, Technology, Engineering, and Mathematics education in K-12 schools across Tennessee. TSIN supports the growth and quality of STEM education in Tennessee by connecting innovative schools, teachers, and administrators to one another and to national resources and supporting schools and communities that want to create innovative schools and programs.

With a strong commitment to the project, we pledge to

- Invite the Data Visualization Project team to share their work at our annual conference, and
- Share the Data Visualization Project website on our TSIN website.

We look forward to expanding our partnership with the University of Tennessee through this project.

Sincerely,

[redacted]

Brandi Stroecker
Director
Tennessee STEM Innovation Network – Battelle

TCVPAS
Tennessee Council of Visual and Performing Arts Supervisors

February 25, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
Washington, DC 20202

To Whom It May Concern:

I am writing this letter to show the Tennessee Council of Visual and Performing Arts Supervisors' commitment to *The Data Visualization Project*, a project proposed in an application to the U.S. Department of Education's Assistance in Arts Education Program. This project promises to make important strides in innovating arts education in Tennessee and expanding arts education into traditional STEM subject areas.

As part of our partnership with *The Data Visualization Project*, we commit to sharing the data visualization curriculum and professional development program with our members. We will send out an email notifying the members of the project, with a link to the project website, as well as invite the project team members to share the project in one of our council meetings.

Several of our council members will be involved in this project in various capacities. I know Amanda Galbraith, one of the *The Data Visualization Project* teacher advisory panel members, has a keen interest in data visualization, and we have talked about implementing data visualization in our Arts360 Program with Ellendale Elementary, where Amanda teaches, so I am eager to learn more about this project.

Sincerely,

[redacted]

Dr. Bradley Foust
Chair of the Tennessee Council for Visual and Performing Arts Supervisors
District Fine Arts Specialist, Bartlett City Schools

<insert letterhead>

March 3, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
Washington, DC 20202

Dear Assistance in Arts Education Program Review Panel:

Affiliated with the National Art Education Association, the Tennessee Art Education Association is a non-profit professional art education organization in the state of Tennessee. Our mission is to advance quality visual arts educations and to promote a cohesive professional community through advocacy, leadership, and professional development.

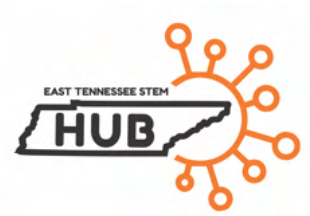
We have successfully partnered with the University of Tennessee's School of Art and Art Education Program and continue to partner with them on many initiatives to advance our mission of supporting quality arts education in the state. The thrust of these initiatives have primarily related to offering PD for visual arts teachers in East Tennessee.

We are happy to support the Data Visualization Project as a partner. We can commit to sharing the Data Visualization Project curriculum with our members through our various communication channels: social media, our blog, and online newsletter. We believe arts teachers in the state would be eager to learn more about how to incorporate data visualization into the classroom. Dr. Joy Bertling's 2019 presentation at our state conference on data visualization was well-attended and generated a lot of interest in the topic.

Through this partnership, we believe we can further equip arts teachers in the state.

Sincerely,

President
Tennessee Art Education Association



February 19, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
Washington, DC 20202

To the Assistance in Arts Education Program:

I am writing this letter to pledge the East Tennessee STEM Hub's strong support for *The Data Visualization Project*, a project described in a proposal submitted to the U.S. Department of Education's Assistance in Arts Education Program. This project promises to make important strides in advancing STEAM education in East Tennessee, which aligns with the Hub's vision.

The goal of the East Tennessee STEM Hub is to promote and support high quality STEM education in the East Tennessee region and to leverage all available resources to amplify opportunities for all students. The Hub is part of the Tennessee STEM Innovation Network in the Knoxville/East Tennessee region. It represents a regional partnership of educational, business, scientific, and research institutions and organizations. Participating counties include Anderson, Blount, Campbell, Claiborne, Grainger, Jefferson, Knox, Loudon, Morgan, Roane, Scott, Sevier, and Union. This hub connects institutions of higher education including the University of Tennessee, Knoxville (Center for Enhancing Education in Mathematics and Science), Pellissippi State Community College, Roane State Community College, and Walters State Community College and more than twenty school districts in thirteen counties**.**

As part of our partnership with The Data Visualization Project, we commit to

- Publicize and recruit for the professional development
- Share The Data Visualization Project's website on our website.

We look forward to supporting this project.

Sincerely,

[redacted]

Dr. Lynn Hodge
Director, The East Tennessee STEM Hub

Data Visualization Working Group
A 2012 Initiative of the NAEA Research Commission

February 19, 2021

US Department of Elementary and Secondary Education
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-6200

To Whom It May Concern:

As the chair of the National Art Education Association Research Commission's Data Visualization Working Group, I am writing to express my strong support for the Data Visualization Project. I see this project as aligning with many of the goals of our Data Visualization Working Group and am thrilled to see how this project will impact the field of art education going forward.

The Data Visualization Working Group examines the viability of data visualization and mapping strategies to communicate information in multiple ways to a range of constituents. Members of the group take up such issues as: visual possibilities/outcomes for the logic of quantitative methods and the exploratory capacity of qualitative inquiry; identifying the utility of data mapping as a descriptive method for demographic research and the potential of visualization as an interpretive means for identifying research questions and directions for inquiry; and exploring the feasibility of data visualization as an approach to professional development that puts the means of compiling information and communicating evidence in the hands of practitioners.

In partnering with the University of Tennessee on this project, we look forward to

1. Inviting Data Visualization Project team members to participate in a webinar for National Art Education Association members to share the curriculum they have developed in 2022;
2. Inviting art teachers, who participated in the professional development and implemented a data visualization curriculum in their classes, to present as a group in another of our webinars in 2024;
3. Inviting Data Visualization Project team members to participate in a Data Visualization Working Group deep dive session at the National Art Education Association's annual convention to present the project in 2025;
4. Including a link to the Data Visualization Project on our website toward the conclusion of the project.

[redacted]
Chair of the Data Visualization Working Group
Commission
[redacted]

February 26, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
Washington, DC 20202

Dear Assistance in Arts Education Program:

I am writing on behalf of Muse Knoxville to share our commitment to *The Data Visualization Project,* a project proposed in an application to the Assistance in Arts Education Program.

If funded, we can commit to working with the project team to host a data visualization session at the museum, open to youth and their families, and sharing the project on our website and including a link to The Data Visualization Project website.

We are incredibly excited about the potential of this project and look forward to partnering with the University of Tennessee to share this important work, which aligns with our mission of inspiring and empowering all children through transformative learning experiences.

Sincerely,

[redacted]

Lee Robinson
Education Manager
[redacted]

Director of Schools
Mike Winstead, Ph.D.
[redacted]

833 Lawrence Avenue, Maryville, Tennessee 37803
[redacted]

Assistant Director of Schools
Amy Vagnier, Ed.S.
[redacted]

February 17, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
400 Maryland Avenue, SW Room 3E308
Washington, DC 20202

Dear Bonnie Carter:

Please accept this letter on my behalf as Director of Maryville City Schools. I wish to express our full support for the University of Tennessee's Data Visualization Project, for which they will be submitting a grant application to the U.S. Department of Education's Assistance in Arts Education Program.

Maryville City Schools has had an ongoing relationship with the University of Tennessee, including partnering with them on the Data Visualization Project this school year. Last semester, a team from the University of Tennessee partnered with us to design and implement a data visualization curriculum in a 6^{tth} grade art classroom in our district. The project went so well that even after the project has ended the art teacher is continuing to implement the curriculum this semester with a new group of students and even expanding the curriculum to include a new data visualization unit. We look forward to seeing the impact that the professional development component of the Data Visualization Project might have for our teachers and students.

As part of our partnership, we have agreed to encourage our teachers to attend the Data Visualization Project's professional development program. Toward the conclusion of the project, we can guarantee that we will share the data visualization curriculum with our Grade 4-8 teachers and disseminate the professional development materials to our school administrators so that this curriculum can be implemented in classrooms and the professional development model reproduced.

We are excited about this project and are looking forward to continuing our partnership with the University of Tennessee.

Sincerely,

[redacted]

Dr. Mike Winstead
[redacted]

KNOXVILLE
MUSEUM OF ART

March 3, 2021

U.S. Department of Elementary and Secondary Education
Office of Well-Rounded Education
U.S. Department of Education
Washington, DC 20202

Dear Assistance in Arts Education Program:

The Knoxville Museum of Art celebrates the art and artists of East Tennessee, presents new art and ideas, educates and serves a diverse community, enhances Knoxville's quality of life and economic development, and operates ethically, responsibly, and transparently as a public trust.

Over the past decade, we have successfully partnered with the University of Tennessee's art education program on a number of initiatives designed to support arts education in East Tennessee. Additionally, the Project Director, Joy Bertling, has served on our education committee for several years. Thus, we are happy to partner with the University of Tennessee on *The Data Visualization Project,* a project proposed in an application to the Assistance in Arts Education Program.

If funded, we can commit to sharing the data visualization curriculum on the Data Visualization Project website with our museum education team and to working with University of Tennessee teacher education students to hold a data visualization summer camp session at the museum, open to upper elementary students, in the summer of 2025.

We see the partnership between the Knoxville Museum of Art and the University of Tennessee as an exciting collaboration furthering arts and STEAM education in East Tennessee and reaching broad audiences.

Sincerely,

[redacted]
Director of Education

Budget Narrative File(s)

*** Mandatory Budget Narrative Filename:** 1240-Budget Narrative.pdf

Add Mandatory Budget Narrative | Delete Mandatory Budget Narrative | View Mandatory Budget Narrative

To add more Budget Narrative attachments, please use the attachment buttons below.

Add Optional Budget Narrative | Delete Optional Budget Narrative | View Optional Budget Narrative

Budget Narrative

Personnel Salaries

Senior Personnel

Personnel positions supporting this project include the project director and lead principal investigator (PI), co-principal investigator (Co-PI), senior personnel, evaluation manager, evaluation specialist, and post-doctoral fellow. The costs associated with these positions are explained below with Tables 1-4 providing an annual breakdown of each individual's salary costs.

Project Director and Lead PI, Joy G. Bertling, Assistant Professor of Art Education, will be responsible for overseeing all aspects of the project, including leading the curriculum refinement efforts, PD design, design research implementation, and dissemination efforts to art education audiences. Her current base salary is $[redacted] As a 9-month employee, she is requesting 1.125 academic months and 1 summer month of support per year. The cost of this request will vary by year due to inflation, calculated at a rate of [redacted] each year, Years 1-3, and her anticipated appointment to associate professor at the outset of Year 4, a likely [redacted] increase. Her total request for salary is $[redacted]

Co-PI, Lynn Hodge, Professor of STEM Education, be responsible for participating in curriculum refinement efforts; co-leading the PD design and design research; and leading dissemination efforts to STEM education audiences. Her current base salary is [redacted]. As a 9-month employee, she is requesting 1.125 academic months and 1 summer month of support per year. Due to inflation, we estimate this cost will increase at a rate of 3% for the next four years. Her total request for salary is [redacted].

Senior Personnel, Pamela Bishop, Director of the National Institute for STEM Evaluation (NISER) at the University of Tennessee, will oversee the evaluation of the project. Dr. Bishop's

role will include overseeing the development of a detailed program theory model and evaluation plan, collection and analysis of evaluation data, and timely reporting to key stakeholder groups. Her current base salary is [redacted]7. Support requested for Dr. Bishop is 0.25 months of support in Years 1-4. Salary is based on current rates and increased [redacted] each year. Her total salary request is [redacted]

Other Personnel

Evaluation Manager, Sondra LoRe, at NISER will serve as part of the evaluation team and will be supervised by Dr. Bishop. The Evaluation Manager will manage the overall evaluation, including serving as a liaison between NISER and the project leadership team, coordination of data collection from key stakeholder groups, coordination of ongoing reporting to project Co-PIs, assistance with data organization and analysis, and assistance with development of interim and final evaluation reports. Her current base salary [redacted]. Support requested for LoRe is 0.25 months of support in Years 1-4. Salary is based on current rates and increased [redacted] each year. The total salary request is [redacted]

Evaluation Specialist, Meredith York, at NISER will serve as part of the evaluation team and will be supervised by Dr. Bishop and the Evaluation Manager. The specialist will assist with the day-to-day tasks of the evaluation, including coordination of data collection from key stakeholder groups, coordination of ongoing reporting to project Co-PIs, assistance with data organization and analysis, and assistance with development of interim and final evaluation reports. Her current base salary is [redacted]. Support requested for the Evaluation Specialist is 2 months of support in Years 1-4. Salary is based on current rates and increased [redacted] each year. The total salary requested [redacted]

Post-Doctoral Fellow, a 12-month calendar-year, full-time position, is requested yearly with a base salary of $[redacted] in Year 1. The responsibilities associated with this position will be split between project management, such as coordinating program logistics, online meetings, and CLEs; and participation in curriculum refinement, professional development design, and research. Salary is based on current rates and increases of [redacted] are anticipated each year. Total salary costs are $[redacted]

Hourly Student Workers

Hourly art education graduate students will be hired to work on the research and implementation aspects of the project, including data storage and data organization as well as working with teachers, administrators, and the post-doctoral fellow to coordinate the CLEs. They will be paid $[redacted]/hour. In Year 1, we anticipate needing 100 hours of assistance for a request of [redacted]0. During Years 2-4, we anticipate needing 200 hours of assistance each year.

Table 1. ***Year 1 Personnel Salaries***

Personnel	Year 1 Base Salary	Academic Year Effort	Summer Effort	Project Salary
Joy Bertling	[redacted]			
Lynn Hodge				

Personnel	Year 1 Base Salary	Calendar Year Effort			Project Salary
Pamela Bishop	[redacted]				
Sondra LoRe					
Meredith York					

Post-Doctoral Fellow	[redacted]					
Personnel	**Hours**	**Hourly Rate**				**Total Pay**
Hourly Student Workers	[redacted]					
Year 1 Personn						

Table 2. ***Year 2 Personnel Salaries***

Personnel	**Year 2 Base Salary**	**Academic Year Effort**	**Summer Effort**	**Project Salary**
Joy Bertling	[redacted]			
Lynn Hodge				
Personnel	**Year 2 Base Salary**	**Calendar Year Effort**		**Project Salary**
Pamela Bishop	[redacted]			
Sondra LoRe				
Meredith York				
Post-Doctoral Fellow				
Personnel	**Hours**	**Hourly Rate**		**Total Pay**

Hourly Student Workers	[redacted]			
Year 2 Personnel Salary Total				[redacted]

Table 3. ***Year 3 Personnel Salaries***

Personnel	**Year 3 Base Salary**	**Academic Year Effort**	**Summer Effort**	**Project Salary**
Joy Bertling	[redacted]			
Lynn Hodge				
Personnel	**Year 3 Base Salary**	**Calendar Year Effort**		**Project Salary**
Pamela Bishop	[redacted]			
Sondra LoRe				
Meredith York				
Post-Doctoral Fellow				
Personnel	**Hours**	**Hourly Rate**		**Total Pay**
Hourly Student Workers	[redacted]			
Year 3 Personnel Salary Total				**$**[redacted]

Table 4. ***Year 4 Personnel Salaries***

Personnel	Year 4 Base Salary	Academic Year Effort	Summer Effort	Project Salary
Joy Bertling	[redacted]			
Lynn Hodge				

Personnel	Year 4 Base	Calendar Year Effort			Project
Pamela Bishop	[redacted]				
Sondra LoRe					
Meredith York					
Post-Doctoral Fellow					

Personnel	Hours	Hourly Rate	Total Pay
Hourly Student Workers	[redacted]		

Year 4 Personnel Salary Total	$[redacted]

Fringe Benefits

Fringe Benefits rates for the named personnel are the actual rates for each individual. Rates are based on the retirement plan the individual is enrolled in; FICA/Medicare, Unemployment Insurance, and Workers Compensation; and the individual's chosen group insurance program. Tables 5-9 show how the rate for each named individual is derived.

Table 10 shows the fringe benefits rate for the to-be-hired post-doctoral fellow. The amounts are based on average fringe rates for UT employees.

Table 11 shows the fringe benefits for the hourly student workers, which are based on the minimum amount of taxes required by law.

Tables 12-15 show the dollar amounts for fringe benefits for each individual annually.

Table 5. ***Fringe Benefits: Joy Bertling***

Fringe Category	Rate - Academic Term	Rate - Summer Term
Retirement	[redacted]	
FICA/Medicare		
Unemployment		
Worker's Comp		
Group Insurance		
TOTAL		

Table 6. ***Fringe Benefits: Lynn Hodge***

Fringe Category	Rate - Academic Term	Rate - Summer Term
Retirement	[redacted]	
FICA/Medicare		
Unemployment		
Worker's Comp		
Group Insurance		
TOTAL		

Table 7. ***Fringe Benefits: Pamela Bishop***

Fringe Category	
Retirement	[redacted]
FICA/Medicare	
Unemployment	
Worker's Comp	
Group Insurance	

TOTAL [redacted]

Table 8. ***Fringe Benefits: Sondra LoRe***

Fringe Category	[redacted]
Retirement	
FICA/Medicare	
Unemployment	
Worker's Comp	
Group Insurance	
TOTAL	

Table 9. ***Fringe Benefits: Meredith York***

Meredith York

Fringe Category	[redacted]
Retirement	
FICA/Medicare	
Unemployment	
Worker's Comp	
Group Insurance	
TOTAL	

Table 10. ***Fringe Benefits: Post-Doctoral Fellow – to-be-hired***

Post-Doctoral Fellow - rates based on average UT employee rates

Fringe Category	[redacted]
Retirement	
FICA/Medicare	
Unemployment	
Worker's Comp	
Group Insurance	
TOTAL	

Table 11. ***Fringe Benefits: Hourly Student Workers***

Hourly Student Workers

Fringe Category	Rate - Calendar Term
FICA/Medicare	[redacted]
Unemployment	
Worker's Comp	
TOTAL	

Table 12. ***Year 1 Fringe Benefits***

Personnel	Year 1 Salary	Fringe Benefits Rate	Total Requested
Joy Bertling	[redacted]		
academic salary			
summer salary			
Lynn Hodge			
academic salary			
summer salary			
Pamela Bishop			
salary			
Sondra LoRe			
salary			
Meredith York			
salary			
Post Doc			
salary			
Hourly Student Worker			
salary			

Table 13. ***Year 2 Fringe Benefits***

Personnel	Year 2 Salary	Fringe Benefits Rate	Total Requested
Joy Bertling			
academic salary			
summer salary			
Lynn Hodge			
academic salary			
summer salary			
Pamela Bishop			
salary			
Sondra LoRe			
salary			
Meredith York			
salary			
Post Doc			
salary			
Hourly Student Worker			
salary			

Table 14. ***Year 3 Fringe Benefits***

Personnel	Year 3 Salary	Fringe Benefits Rate	Total Requested
Joy Bertling			
academic salary			
summer salary			
Lynn Hodge			
academic salary			
summer salary			

Pamela Bishop
salary

Sondra LoRe
salary

Meredith York
salary

Post Doc
salary

Hourly Student Worker
salary

[redacted]

Table 15. ***Year 4 Fringe Benefits***

Personnel	Year 4 Salary	Fringe Benefits Rate	Total Requested
Joy Bertling academic salary summer salary	[redacted]		
Lynn Hodge academic salary summer salary			
Pamela Bishop salary			
Sondra LoRe salary			
Meredith York salary			
Post Doc salary			

Hourly Student Worker salary [redacted]

Project Staff Travel

Domestic Travel to National Conferences

Project personnel will travel domestically during Years 2, 3, and 4 to present curriculum and research findings at national conferences. This travel is an important component of DVP national dissemination.

The cost of each trip will vary depending upon the location and registration fees associated with each conference. We anticipate the registration fees will range from $[redacted]$[redacted] and that airfare will average $[redacted] hotels $[redacted] per diem $[redacted] and ground transportation $[redacted] per traveler per conference. Trip costs are estimated at $[redacted]$[redacted] per person. All conference travel originates from Knoxville, TN.

Table 16. ***Year 2 Conference Travel***

Travelers	Conf.	Location	Registration	Airfare	Hotel	Per Diem	Ground Transportation	Total
PI Bertling, Co-PI Hodge, and Post-Doc	AERA	San Diego, CA	[redacted]					
PI Bertling and Post-Doc	NAEA	New York, NY						
Co-PI Hodge	NCTM	TBD						

Year 2 Conference Travel Total	$[redacted]

Table 17. ***Year 3 Conference Travel***

Travelers	Conf.	Location	Registration	Airfare	Hotel	Per Diem	Ground Transportation	Total
PI Bertling, Co-PI Hodge, and Post-Doc	AERA	Chicago, IL	[redacted]					
PI Bertling and Post-Doc	NAEA	San Antonio, TX						
Co-PI Hodge	NCTM	TBD						
Year 3 Conference Travel Total								

Table 18. ***Year 4 Conference Travel***

Travelers	Conf.	Location	Registration	Airfare	Hotel	Per Diem	Ground Transportation	Total
PI Bertling, Co-PI Hodge, and Post-Doc	AERA	TBD	$[redacted]					
PI Bertling and Post-Doc	NAEA	TBD	$					
Co-PI Hodge	NCTM	TBD	$					
Year 4 Conference Travel Total								

Other Travel

Site Visits. During Year 1, three project personnel will visit the pilot test sites to participate in implementing and evaluating the pilot curricula in media arts and STEM classrooms to support curriculum development and refinement. During Years 2, 3, and 4, project personnel will travel to the PD sites to support implementation and evaluation of the PD model. During Years 3 and 4, project personnel will visit schools 1) to assess classroom implementation of the data visualization curriculum teachers have designed and 2) to organize and attend CLEs, both activities evaluating and researching the impact of the PD model. At a mileage rate of [redacted] breakdown of these costs.

Table 19. ***Year 1 Site Visit Costs***

Destination	Number of Travelers	Number of Trips per Traveler	Miles per Trip	Total Miles	Mileage Rate	Total Cost
Purpose: Pilot the curriculum in a media arts classroom						
A school in Knox County	3	8	15	360	[redacted]	
Purpose: Pilot the curriculum in a STEM classroom						
A school in Knox County	3	8	15	360		
Year 1 Site Visit Total:						

Table 20. ***Year 2 Site Visit Costs***

Destination	Number of Travelers	Number of Trips per Traveler	Miles per Trip	Total Miles	Mileage Rate	Total Cost
Purpose: Support and observe Cycle 1 PD Summer Institutes						
PD Site in Knoxville	3	5	15	225	[redacted]	
Year 2 Site Visit Total:						

Table 21. ***Year 3 Site Visit Costs***

Destination	Number of Travelers	Number of Trips per Traveler	Miles per Trip	Total Miles	Mileage Rate	Total Cost
Purpose: Observe PD Cycle 1 teacher participants as they implement the curriculum						
Schools in East Tennessee	2	10	50	1,000	[redacted]	
Purpose: Support and observe PD Cycle 2 summer ins						
PD site in Knoxville	3	5	15	225		
Purpose: Support the first CLE						
School in East Tennessee	2	2	20	80		
Year 3 Site Visit Total						

Table 22. Year 4 Site Visit Costs

Destination	Number of Travelers	Number of Trips per Traveler	Miles per Trip	Total Miles	Mileage Rate	Total Cost
Purpose: Observe PD Cycle 2 participants as they implement the curriculum						
A school in Knox County	2	40	50	4,000	[redacted]	
Purpose: Support CLEs						
Schools in East Tennessee	2	18	50	1,800		
Year 4 Site Visit Total						

Materials and Supplies

The post-doctoral fellow will need a laptop to collect data remotely and for portability of their work. Therefore, $[redacted] is requested in Year 1 for the laptop and accessories. In Year 1, [redacted] requested for materials for team meetings (e.g. handouts, copies of artifacts, post-it pads, legal pads, etc.).

Both PD cycles will require materials and supplies for participants to use in these experiential summer institutes. In Year 2, $[redacted] is requested, [redacted] $[redacted] for general materials and tools (e.g., large post-it pads, and tape), and $[redacted] for books and workbooks related to data visualization. In Year 3, $[redacted] is requested, [redacted] $200 for general materials and tools (e.g., large post-it pads, and tape), and $[redacted] for books and workbooks related to data visualization. PD participants have all

been issued Chromebooks by their school district. [redacted]

Costs for snacks are requested for the 5-day summer institute PD sessions. In Year 2, costs for snacks will be $[redacted] per day, for a total of $[redacted] In Year 3, costs for snack will be at $[redacted] per day as there will be a larger number of participants. Costs in Year 3 will total $[redacted]

Lunch is requested for summer institutes for the PD participants, facilitators, and attending key personnel. During Year 2, we anticipate needing an average of 18 lunches per day, for a total of 90 lunches for the 5-day summer institute. During Year 3, we anticipate needing 50 lunches per day, for a total of 250 lunches for the 5-day summer institute. [redacted] for 90 lunches is requested for Year 2, and $[redacted] for 250 lunches for Year 3.

[redacted]

Invites/handouts/flyers will be needed to advertise each CLE. Costs are for printing the flyers. With 1-2 CLEs estimated in Year 3, we are requesting $[redacted] for Year 3 CLEs advertisements. With 10-15 CLEs estimated in Year 4, we are requesting $[redacted] for Year 4 CLE advertisements.

[redacted]

Consultants

LEA Personnel

The following individuals will join key personnel, Drs. Bertling and Hodge, to serve on the DVP leadership team to oversee the progression of the project:

Heather Casteel, Knox County Schools' District Fine Arts Content Specialist, has been overseeing visual art education in her district for close to a decade. Dr. Casteel is a fine arts leader in the state, having played a leadership role in visual art standards adoption and leading state educational committees.

Katherine McKee, Roane County Schools' Middle School Science Teacher, is an award-winning teacher with significant leadership experiences in STEM at local and state levels.

Additionally, they will serve on the implementation team to manage DVP's curriculum piloting and professional development implementation. These team will meet monthly during Years 1-4. Additionally, in Year 1, they will observe the curriculum pilots in-person or remotely. In Years 2 and 3, Heather Casteel will observe the summer institutes. Ms. McKee will be serving as summer institute PD facilitator and will have the opportunity to observe PD in this role (and will be compensated for this facilitation separately [see the Professional Development Facilitators section below]). In Year 1, we estimate 22 hours of work per team member, with pay calculated [redacted]). In Years 2 and 3, we estimate 15 hours of

work for Ms. McKee ($[redacted] and 45 hours of work for Dr. Casteel ($[redacted] for a request of $[redacted] In Year 4, we estimate 15 hours of work for both individuals for a request of [redacted] $[redacted] each).

Professional Development Facilitators

The following individuals, reflecting different areas of expertise in relation to teaching and data visualization, will serve as PD facilitators, by delivering PD to teachers, during Years 2 and 3.

Joshua Drews, High School Art and Media Arts Teacher and Arts and Technology Coordinator for the South Caroline Department of Education, offers expertise in data visualization through media arts and has extensive experience facilitating media arts PD.

Christopher Grodoski, Middle Grades Art Teacher, published author in the field of data visualization, offers significant data visualization expertise and award-winning middle grades teaching and state arts leadership experience.

Katherine McKee, Middle Grades STEM Teacher, offers expertise in the field of science education as a recognized STEM leader in her district.

Adam Hunley, Elementary and Middle Grades Science and Math Teacher, offers expertise in the field of STEM education.

Nick Kim, Post-Doctoral Fellow in STEM Education, offers expertise in the field of mathematics education as well as experience in coordinating and facilitating PD.

Ericka Ryba, Intermediate Grades Art Teacher, has experience teaching data visualization in her intermediate school (Grades 4-7) art classroom.

PD Facilitator Fees. We are requesting 5 PD facilitators receive $[redacted]/day for each of the five PD days in each PD cycle (see Tables 18 and 19). Recognizing the need to prepare the

facilitators before the institutes to deliver the PD in accordance with the DVP vision, we intend to hold a virtual PD facilitator orientation and other preparatory activities and are requesting $[redacted] per facilitator for these activities ($[redacted] for Years 2 and Year 3). Total PD facilitator compensation of $12,000 is requested for Year 2, and $[redacted] is requested for Year 3.

PD Facilitator Travel. During Years 2 and 3, two local PD facilitators will need to travel to the PD sites to deliver the PD for the 5-day summer institutes. We estimate 10 trips per year calculated to average 12 miles per trip at $[redacted] per mile. Local travel costs for PD facilitators are estimated at $[redacted] per year.

Additionally, two PD facilitators live out-of-state. Both Joshua Drews, living in SC, and Christopher Grodoski, in Illinois, will make 1 trip to Knoxville during Years 2 and 3 to deliver the PD. These two out-of-state facilitators will require mileage reimbursement, lodging, and per diem while in Knoxville. For the 5-day institutes, Drews' total expenses are estimated at $[redacted] and Grodoski's at [redacted] per Years 2 and 3. (Per Diem is based on breakfast and dinner for 5 days [lunch provided on PD days] for total of $[redacted] per day. Total is $[redacted] on travel day. Hotel is based on $[redacted] per night for 7 nights).

Table 23. *Year 2 Out-of-State PD Facilitator Travel*

Travelers	Point of Origin	Destination	Total Miles	Mileage	Hotel	Per Diem	Total
Joshua Drews	Columbia, SC	Knoxville, TN	560	[redacted]			
Chris Grodoski	Chicago, IL	Knoxville, TN	1,125				

Table 24. *Year 3 Out-of-State PD Facilitator Travel*

Travelers	Point of Origin	Destination	Total Miles	Mileage	Hotel	Per Diem	Total
Joshua Drews	Columbia, SC	Knoxville, TN	560	[redacted]			

Chris Grodoski	Chicago, IL	Knoxville, TN	[redacted]

Table 25. *Year 2 PD Facilitator Fees and Travel Costs*

Activity	**Number of Facilitators**	**Number of Days**	**Payment per Day**	**Total**
Orientation for PD Cycle 1 Facilitators	6	1	[redacted]	
PD Cycle 1 Summer Institute	6	5		
Travel				
Year 2 Total PD Facilitator Fees and Travel Costs				

Table 26. *Year 3 PD Facilitator Fees and Travel Costs*

Activity	**Number of Facilitators**	**Number of Days**	**Payment per Day**	**Total**
Orientation for PD Cycle 2 Facilitators	6	1	[redacted]	
PD Cycle 2 Summer Institute	6	5		
Travel				

Year 2 Total PD Facilitator Fees and Travel Costs	$[redacted]

Teacher Advisory Panel Members

The following individuals, reflecting different areas of expertise related to data visualization and various arts and STEM subjects, will serve on a teacher advisory panel during Years 2-3 to provide feedback on the DVP professional development plans and materials:

Joshua Drews, High School Visual Art and Media Arts Teacher and Arts and Technology Coordinator for the South Caroline Department of Education, offers expertise in the field of media arts education curriculum and PD.

Amanda Galbraith, Elementary Art Teacher and Former District Arts Coordinator, offers expertise in the field of art education and data visualization.

Adam Hunley, Elementary and Middle Grades Science and Math Teacher, offers expertise in STEM education and experience teaching in a rural East TN school district.

Ashley McNealy, Elementary Teacher, offers expertise in STEM education and experience teaching in a rural East TN school district.

Jonathan Reagan, Middle Grades Math Teacher, serves as a math curriculum leader in his district and has experience teaching in rural East TN school districts.

Ericka Ryba, Intermediate School Art Teacher, has experience teaching data visualization in her intermediate school art classroom.

This panel will meet via Zoom twice a year for an estimated 6 annual hours of work per panel member. At a rate of $[redacted]/hour, we are requesting $[redacted]/year to compensate each of the 5 panel members each year, for a request of $[redacted] for Year 2 and $[redacted] for Year 3.

Content Expert Panel Members

The following individuals, reflecting different areas of expertise in relation to teaching and data visualization, will serve on a content expert advisory panel Years 1-3 to provide feedback on the DVP curricular materials and professional development plans and materials:

Caroline Covington, Assistant Professor of Visual Art [redacted]

Nick Geidner, Associate Professor of Journalism [redacted]

Christopher Grodoski, Middle Grades Art Teacher with a Ph.D. in Art and Design Education [redacted]

Shande King, Assistant Professor of Mathematics Education [redacted]

Richard Siegesmund, Professor Emeritus of Art and Design Education [redacted]

Rebecca Williams, Assistant Professor of Art Education [redacted]

This panel will meet via Zoom twice a year with some additional review of materials before and after the biannual meetings for an estimated 8 annual hours of work per panel member. At a rate of $[redacted]/hour, we are requesting $[redacted]/year to compensate each panel member, for a request of $[redacted] each year during Years 1-3.

Other Projected Expenditures

PD Participant Stipends

We are requesting $[redacted]/participant for the arts and STEM teachers who participate in the DVP PD in Years 2 and 3. The year following their initial participation, we are requesting that

they receive an additional stipend of $[redacted] for completing the program, which includes their implementation of a data visualization curriculum and involvement in research activities. With 10 teachers estimated to participate in the PD Cycle 1 during Year 2, we are requesting $[redacted] for Year 2 teacher stipends. In Year 3, when those same teachers complete the program, we are requesting $[redacted] for their program completion stipends. Additionally, in Year 3, when 40 new teachers are estimated to participate in PD Cycle 2, we are requesting $[redacted] to compensate them for their participation. In Year 4, we are requesting $[redacted] to compensate those PD Cycle 2 teachers for their completion of the program. Thus, the Year 2 total request for participant

[redacted]

The University of Tennessee's federally approved indirect cost rate for on-campus research of [redacted] is applied against a Modified Total Direct Cost base. This MTDC base is [redacted] is requested for indirect costs.

Total Costs

[redacted]

U.S. DEPARTMENT OF EDUCATION
BUDGET INFORMATION
NON-CONSTRUCTION PROGRAMS

OMB Number: 1894-0008
Expiration Date: 09/30/2023

Name of Institution/Organization

The University of Tennessee

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

SECTION A - BUDGET SUMMARY
U.S. DEPARTMENT OF EDUCATION FUNDS

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Project Year 6 (f)	Project Year 7 (g)	Total (h)
1. Personnel	[redacted]							
2. Fringe Benefits								
3. Travel								
4. Equipment								
5. Supplies								
6. Contractual								
7. Construction								
8. Other								
9. Total Direct Costs (lines 1-8)								
10. Indirect Costs*								
11. Training Stipends								
12. Total Costs (lines 9-11)								

Indirect Cost Information** ***(To Be Completed by Your Business Office): If you are requesting reimbursement for indirect costs on line 10, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal government? ☒ Yes ☐ No

(2) If yes, please provide the following information:

Period Covered by the Indirect Cost Rate Agreement: From: 07/01/2021 To: 06/30/2023 (mm/dd/yyyy)

Approving Federal agency: ☐ ED ☒ Other (please specify): DHHS

The Indirect Cost Rate is [redacted] %.

(3) If this is your first Federal grant, and you do not have an approved indirect cost rate agreement, are not a State, Local government or Indian Tribe, and are not funded under a training rate program or a restricted rate program, do you want to use the de minimis rate of 10% of MTDC? ☐ Yes ☐ No If yes, you must comply with the requirements of 2 CFR § 200.414(f).

(4) If you do not have an approved indirect cost rate agreement, do you want to use the temporary rate of 10% of budgeted salaries and wages?

☐ Yes ☐ No If yes, you must submit a proposed indirect cost rate agreement within 90 days after the date your grant is awarded, as required by 34 CFR § 75.560.

(5) For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:

☐ Is included in your approved Indirect Cost Rate Agreement? Or, ☐ Complies with 34 CFR 76.564(c)(2)? The Restricted Indirect Cost Rate is ☐ %.

(6) For Training Rate Programs (check one) -- Are you using a rate that:

☐ Is based on the training rate of 8 percent of MTDC (See EDGAR § 75.562(c)(4))? Or, ☐ Is included in your approved Indirect Cost Rate Agreement, because it is lower than the training rate of 8 percent of MTDC (See EDGAR § 75.562(c)(4))?

Name of Institution/Organization	Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.	
The University of Tennessee		

SECTION B - BUDGET SUMMARY
NON-FEDERAL FUNDS

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Project Year 6 (f)	Project Year 7 (g)	Total (h)
1. Personnel								
2. Fringe Benefits								
3. Travel								
4. Equipment								
5. Supplies								
6. Contractual								
7. Construction								
8. Other								
9. Total Direct Costs (lines 1-8)								
10. Indirect Costs								
11. Training Stipends								
12. Total Costs (lines 9-11)								

SECTION C - BUDGET NARRATIVE (see instructions)

ED 524

Name of Institution/Organization	Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.	
The University of Tennessee		

IF APPLICABLE: SECTION D - LIMITATION ON ADMINISTRATIVE EXPENSES

(1) List administrative cost cap (x%): ☐

(2) What does your administrative cost cap apply to? ☐ (a) indirect and direct costs or, ☐ (b) only direct costs

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Project Year 6 (f)	Project Year 7 (g)	Total (h)
1. Personnel Administrative								
2. Fringe Benefits Administrative								
3. Travel Administrative								
4. Contractual Administrative								
5. Construction Administrative								
6. Other Administrative								
7. Total Direct Administrative Costs (lines 1-6)								
8. Indirect Costs								
9. Total Administrative Costs								
10. Total Percentage of Administrative Costs								

ED 524